









PRESENTED

1938

# ANNUAL REPORT

OF THE COUNCIL

OF THE

YORKSHIRE

# PHILOSOPHICAL SOCIETY

FOR THE YEAR

**1937**

PRESENTED TO THE ANNUAL MEETING,

FEBRUARY 14th, 1938.

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PRINTED BY ORDER OF THE COUNCIL.

1938.

*Issued April 8th, 1938*



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FORM  
OF A  
BEQUEST TO THE SOCIETY.

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Every person desirous of bequeathing to the Society any sum of Money, Specimens, Books, Instruments, or other Property, is requested to make use of the following form:—

*I give and bequeath to the Trustees, for the time being, of the Society established at York, called “**The Yorkshire Philosophical Society,**” for the use of the said Society, the sum of \_\_\_\_\_ to be paid out of such part of my personal estate as I may legally charge therewith. [Or here enumerate the effects or property intended to be bequeathed.] And I direct that the receipt of the Treasurer of the said Society, for the time being, shall be an effectual discharge to my Executors for the said legacy.*



# The Yorkshire Philosophical Society.

(Founded 1822.)

## Patroness :

HER MAJESTY QUEEN MARY.

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## Trustees :

THE RT. HON. THE EARL OF FEVERSHAM.

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THE RT. HON. THE EARL OF FEVERSHAM.

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COUN. H. E. HARROWELL; J.P.

E. BAKER.

J. H. COLLINSON, M.A.

## Hon. Treasurer and Hon. Secretary :

COL. INNES N. WARE, O.B.E., T.D.

## Committees :

### General Purposes and Finance Committee :

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W. HARVEY BROOK.	SIR FRANK W. TERRY.
JOHN A. COOPER.	GEOFFREY THOMPSON.
ARTHUR HURST.	J. TRIFFITT.
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SIDNEY MELMORE.	

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ARTHUR HURST.	K. E. T. WILKINSON.

DR. COLLINGE, *Secretary*.

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### Museum Committee :

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W. HARVEY BROOK.	SYDNEY H. SMITH.
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### Abbey Restoration Committee :

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JOHN A. COOPER.	GEOFFREY THOMPSON.
COUN. H. E. HARROWELL	J. TRIFFITT.
REV. A. RAINE.	KENNETH WARD.
J. H. RUTHERFORD.	COL. INNES N. WARE.
SYDNEY H. SMITH.	DR. COLLINGE, <i>Secretary</i> .

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### Building Committee :

ALD. W. H. BIRCH.	KENNETH WARD.
J. H. RUTHERFORD.	K. E. T. WILKINSON.
J. TRIFFITT.	DR. COLLINGE, <i>Secretary</i> .

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The President, the Hon. Secretary and Hon. Treasurer, and the Keeper are *ex-officio* members of all Committees.

## York and District Field Naturalists' Section.

*President :*

SIDNEY MELMORE, B.Sc.

*Vice Presidents :*

W. G. BRAMLEY.

E. W. TAYLOR.

C. ALLEN.

V. G. F. ZIMMERMANN.

*Hon. Treasurer :*

G. MACHIN,  
42, Vyner Street, York.

*Hon. Secretary :*

A. W. PING, M.A., F.R.Met.S.  
St. Olave's, Clifton, York.

The Annual Subscription to the Section is five shillings. Membership is open to both members and non-members of the Yorkshire Philosophical Society. Members of the Yorkshire Philosophical Society are cordially invited to the lectures.



REPORT OF THE COUNCIL  
OF THE  
YORKSHIRE PHILOSOPHICAL SOCIETY.

14th FEBRUARY, 1938.

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THE work of the Society has continued successfully during the year.

The restoration of St. Mary's Abbey was started in July 1936, and so far all the bays of the north wall of the nave have been treated, and the western doorway and north-west bay on both east and west sides.

Up to the present time a sum of £892 13s. 3d. has been received or promised as the result of the Appeal, and £1,086 5s. 7d. has been expended.

The remainder of the north wall of the nave and the tower, the whole of the eastern portion of the Abbey and the arch and walls at the Marygate entrance still await attention.

At least another £3,000 will be required to complete this work.

The Council desire to place on record their thanks to the Rev. A. Raine and Mr. Claude A. Jones for their lectures in aid of the above Fund.

Early in the year the Council discussed the question of asking the Carnegie Trust for a grant of £200 for a show case for the Central Hall. The Keeper was instructed to carry this out, and an application has been made.

A sum of about £600 would complete the series of show-cases desired for the Central Hall.

The following is a full list of Lectures delivered in the Tempest Anderson Hall during the year.

January 21st.—“The Coronation.” The Rev. Jocelyn Perkins, M.A., D.C.L., F.S.A.

Chairman: The Rev. Frank Spencer.

February 4th.—“The Mind of the Dictator.” The Rev. Canon Paton-Williams.

Chairman: J. L. Brockbank, M.A.

February 18th.—“My Escapes as a Prisoner of War.” Lt.-Col. M. C. C. Harrison, D.S.O., M.C.

Chairman: Col. Innes N. Ware, O.B.E.

- March 4th.—“Secrets of the Saharas.” Sir Curtis Lampson, Bart.  
Chairman: Charles Allen.
- October 14th.—“Adventures in Brazilian Waters.” Miss Winifred Brown.  
Chairman: Ald. W. H. Birch, J.P.
- October 28th.—“The Fabulous Golden Treasure of the Tomb of Tutankhamen, as I saw it.” James R. Ogden, J.P., F.S.A., F.R.A.S.  
Chairman: Geoffrey Thompson, M.A., F.S.A.
- November 11th.—“The Cinque Ports and the Rise of the British Navy.”  
The Rev. C. S. T. Watkins, M.A.  
Chairman: Arthur Hurst.
- November 25th.—“Wild Life in Amazing Australia.” H. Cedric Fenton, F.R.E.S.  
Chairman: Charles Allen.
- December 9th.—“The Splendour of India.” Selwyn Driver.  
Chairman: J. L. Brockbank, M.A.

The improved attendance at the lectures has been maintained.

The Council note with pleasure a slight increase in the number of members elected during the year. They would urge members to bring the work of the Society to the notice of their friends, and would much like to see greater support, particularly from the clergy, medical, legal and other professions and the schoolmasters and schoolmistresses of the City.

FINANCE.—The year opened with a credit balance of £172 1s. 1d. For the year there was an excess of income over expenditure of £137 13s. 6d., and after paying £100 to the Abbey Restoration Fund, and other items, there remained a credit balance of £61 6s. 2d. on December 31st.

The Million Shilling Fund stands at £53 16s. 2d. and the Reed Bequest shows a credit balance of £36 16s. 5d.

The “H. J. Wilkinson Memorial Fund” shows a credit balance of £3 5s. 2d.

At a recent meeting of the Council the following resolution was passed unanimously:—

“That in recognition of the seven years’ invaluable service by Mr. Arthur D. Gladwin as Honorary Auditor of this Society, the Council wish to place on record their high appreciation of such services by electing him a Life Member of the Society.”

The Council deeply regret the loss by death of the following members: Col. W. A. White, J.P., who joined the Society in 1913, became a member of the Council in 1920, and was a Vice-President from 1926; Mr. S. Walker who had been a member since 1897, a member of the Council since 1907,

Honorary Treasurer since 1924, and Honorary Curator of Entomology since 1907.

The Council desire to thank the Honorary Curators for their services during the year, and to place on record their appreciation of the work of the Keeper of the Museum.

FIELD NATURALISTS' SECTION.—This section has enjoyed a year of interesting work, and the Summer Excursions and Evening Meetings have been reasonably well attended. The painstaking work of the President, Mr. W. G. Bramley, in the study of microscopic Fungi has been rewarded by the discovery of several species new to the County, and one species believed to be new to Science.

A number of unusual observations have been recorded in our area, and the detailed reports set out at length in our Recorders' Report books must be regarded as of very considerable value.

Once again we have to regret the loss by death of several of our older members, viz., Mr. S. Walker, a former President and a noted entomologist, and Mr. J. Hetherington, who in time past was always very willing for our members to visit his Sandburn Estate.

At the close of the year it is pleasing to record an increase in membership. We have 8 Honorary Members, 104 Ordinary Members (an increase of 10), 10 Student Members, and 6 Corresponding Members.

The following Lectures and Excursions have been held during 1937 :—

January 13th.—Lantern Lecture : "Birds of our Coast." W. Bennett.  
February 3rd.—Recorders' Reports : Botany, J. H. Evers. Entomology, A. Smith.

February 17th.—Lecturettes and Exhibits.

March 3rd.—Presidential Address : Lantern Lecture, "Rusts and Smuts." W. G. Bramley.

March 17th.—Lantern Lecture : "The Topography of Glaciated Areas." T. H. Whitehead, M.Sc.

March 31st.—Recorders' Reports : Ornithology, V. G. F. Zimmermann. Vertebrate Zoology, S. H. Smith, F.Z.S.

April 8th.—Annual Meeting.

June 2nd.—A Visit to Newtondale, near Pickering.

June 16th.—A Visit to Keld Head Fish Ponds.

June 23rd.—An Evening Visit to "Willowsyde."

June 26th.—Yorkshire Naturalists' Union at Bubwith.

June 3rd.—An Evening Visit to Shipton.

June 7th.—A Visit to Stutton quarries, near Tadcaster.

July 21st.—A Visit to the Hermitage, Malton Road.

August 28th.—A Visit to Oldstead, near Coxwold.

September 4th.—Conchological Ramble : Bramham Cross Roads district.

October 2nd.—Autumn Excursion and Fungus Foray to Aldby Park and Buttercrambe.

- October 6th.—Lantern Lecture: "Some Plants of the Countryside."  
A. W. Ping, M.A.
- October 21st.—General Exhibit Night.
- November 3rd.—Geological Recorder's Report, Lecture, and Exhibits.  
J. A. Dell, M.Sc.
- November 18th.—Lantern Lecture: "Yorkshire Fishes and Fishery  
Problems." S. H. Smith, F.Z.S.
- December 1st.—Recorders' Reports, Notes and Exhibits. Conchology,  
C. F. Sweetman. Fresh-Water Biology, C. Allen.
- December 15th.—Lecturettes: "Further Notes on the Song of the  
Blackbird." V. G. F. Zimmermann. "Note on Fungus Pests."  
W. G. Bramley.



## NEW MEMBERS, ELECTED IN 1937.

Barber, E. S., B.A., 4, Bootham Terrace.  
 Barks, S. A., New Street.  
 Baxter, J. A., "Eshland," Whitby Avenue.  
 Brooke, B., 57, Blossom Street.  
 Calvert, W., 9, Gillygate.  
 Cooch, P., "Hawthorn," St. Oswald's Road.  
 Cooper, Alderman W., "Dringthorpe."  
 Dodsworth, A. S. E., 67, Micklegate.  
 Dronfield, J., St. Peter's School.  
 Hey, A., 4, Low Ousegate.  
 Hodgson, A. B., Archbishop Holgate's Grammar School.  
 Hunter, A., 14, Dove Street.  
 Knight, C. B., J.P., "Kentdale," Shipton Road.  
 Knowles, M., 9, St. Mary's.  
 Lyth, W. R., "Gillcroft," The Mount.  
 Mackenzie, C. W., B.M., B.Ch., M.R.C.P., 28 Gillygate.  
 Marshall, T. A., "St. Olave's House," Marygate.  
 Mercer, H., "Capel Ville," New Walk Terrace.  
 Newitt, F., 7, Wetherby Road.  
 Rowntree, P., "The Homestead," Clifton.  
 Rymer, Mrs. H. V. 12, Park Place.  
 Scott, H. C., Clifton Green.  
 Shepherd, F. W., 6, Elm Bank, The Mount.  
 Smith, Mrs. H. A., 5, Avenue Victoria, Scarborough.  
 Spencer, Rev. F., 21, Penley's Grove Street.  
 Wilson, V., Ph.D., B.Sc., F.G.S., Sheriff Hutton.  
 Willson-Pepper, J. K., M.A., M.B., M.R.C.S., L.R.C.P., 48, Bootham.

## DEATHS.

## MEMBERS.

Birks, E. A., "West Garth," Acomb Road.  
 Crombie, N. T., "Haverford," Clifton.  
 Ditmas, Col. H. P., 7, St. Mary's.  
 Dixon, Miss Connell, Minster Yard.  
 French, G. W., 11, Minster Yard.  
 Hardgrave, A., 55, Monkgate.  
 Howard, J. T., 8, Sycamore Terrace.  
 Pflugger, C., 32, Queen Anne's Road.  
 Procter, T., Cherry Hill House.  
 Roberts, A., 63, Wentworth Road.  
 Rymer, M., "Redworth," Clifton.  
 Walker, S., F.R.E.S., 53, Micklegate.  
 White, Col. W. A., J.P., 109, Clifton.  
 Wright, Miss J., 2, Richardson Street.

## RESIGNATIONS.

Members	...	...	...	...	26
Lady Subscribers	...	...	...	...	4
					—
					30
					—

## DEATH AND RESIGNATION.

Members	...	...	...	...	40
Lady Subscribers	...	...	...	...	4
					—
					44
					—

## NEW MEMBERS.

27

TOTAL MEMBERSHIP ON 31st DECEMBER,  
1937.

Honorary Members	...	...	...	30
Members	...	...	...	296
Lady Subscribers	...	...	...	29
Associates	...	...	...	4
				359

PAST PRESIDENTS  
OF THE  
YORKSHIRE PHILOSOPHICAL SOCIETY.

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- 1822-1830. The Rev. William Venables Vernon, F.R.S., F.G.S. (Resigned at Annual Meeting, February, 1831.)
- 1831-1857. The Viscount Milton, F.R.S., F.S.A. (afterwards became the Earl Fitzwilliam). (See Ann. Rpt. for 1857, p. 15.) (Died 1857.)
- 1858-1864. The Earl of Carlisle, K.G., F.R.S. (Died 1864.)
- 1865-1890. His Grace the Lord Archbishop of York. (William Thomson, F.R.S., F.G.S.) (See Ann. Rpt. for 1890, p. 14.) (Died 1890.)
- 1892-1906. Sir Charles Strickland, Bart., F.G.S. (Resigned early in 1906.)
- 1906-1913. Tempest Anderson, M.D., D.Sc. (Died 26th August, 1913.)
- 1914-1933. William Herbert St. Quintin, D.L., J.P. (Died January 21st, 1933.)

## LIST OF HONORARY MEMBERS.

1. 1897. Berget, Baron A., Sorbonne, Paris.
2. 1906. Bower, F. O., M.A., Sc.D., LL.D., F.R.S., The Crescent, Ripon.
3. 1898. Clark, J. E., B.A., B.Sc., Portway, Street, Somerset.
4. 1923. Clarke, Wm. Eagle, I.S.O., LL.D., F.R.S.E., The Royal Scottish Museum, Edinburgh.
5. 1924. Collingwood, Prof. R. G., M.A., F.S.A., F.B.A., Magdalen College, Oxford.
6. 1906. Cornish, Vaughan, D.Sc., Inglewood, Camberley, Surrey.
7. 1936. Elgee, Frank, Ph.D., The Dorman Memorial Museum, Middlesbrough.
8. 1926. Fox, Sir Cyril, Ph.D., F.S.A., Director of the National Museum of Wales, Cardiff.
9. 1920. Grabham, Oxley, M.A., Heron Cottage, Thornton Dale, Yorks.
10. 1923. Harmer, Sir Sidney F., K.B.E., Sc.D., F.R.S., The Old Manor House, Melbourn, near Royston, Herts.
11. 1934. Hill, Sir George Francis, K.C.B., M.A., D.C.L., LL.D., F.S.A., 12, Sussex Place, Regent's Park, London, N.W.1.
12. 1926. Keith, Sir Arthur, M.D., LL.D., F.R.C.S., F.R.S., Buckston Browne Farm, Farnborough, Kent.
13. 1938. Kendrick, T. D., M.A., F.S.A., Keeper of the Department of British and Mediaeval Antiquities, British Museum, London, W.C.1.
14. — Lightfoot, Thomas, Masham, Yorks.
15. 1929. Maclagan, Sir Eric, C.B.E., M.A., F.S.A., Director and Secretary of the Victoria and Albert Museum, London, S.W.1.
16. 1925. Marriott, Sir John A. R., M.A., 17, Belgrave Square, London.
17. 1906. Müller, Sophus, Prindsens Palais, Copenhagen.
18. 1936. Ogden, James R., J.P., F.S.A., F.R.S.A., 38, James Street, Harrogate.
19. 1934. Parker, Col. John, C.B., D.L., F.S.A., Browsholme Hall, Nr. Clitheroe.
20. 1926. Peers, Sir Charles R., C.B.E., M.A., Litt.D., F.B.A., F.S.A., Chiselhampton House, Stadhampton, Oxford.
21. 1935. Platnauer, H. M., B.Sc., Milton Court Hotel, 68-72, Cromwell Road, London, S.W.7.
22. 1927. Regan, C. Tate, M.A., D.Sc., F.R.S., F.L.S., Director of the British Museum (Nat. Hist.), London, S.W.
23. — Sadler, Sir Michael Ernest, K.C.S.I., C.B., D.Litt., LL.D., Master of University College, Oxford.
24. 1906. Shetelig, Dr. Haakon, Bergens Museum, Bergen, Norway.
25. 1924. Smith, Arthur H., C.B., M.A., F.S.A., F.B.A., 2, Balfour Road, Weybridge, Surrey.
26. 1929. Thompson, Professor A. Hamilton, M.A., D.Litt., F.S.A., The University, Leeds.
27. 1930. Wheeler, R. Mortimer, M.C., M.A., D.Litt., F.S.A., London Museum, Lancaster House, London, S.W.
28. 1926. Woods, Henry, M.A., F.R.S., Sedgwick Museum, Cambridge.
29. 1923. Woodward, Sir A. Smith, LL.D., F.R.S., F.G.S., Hill Place, Hayward's Heath, Sussex.
30. 1922. Yeld, George, M.A., Orleton, Gerrards Cross, Bucks.

THE YORKSHIRE PHILOSOPHICAL SOCIETY,  
EXPENDITURE.

## GENERAL INCOME

<i>Last Year</i>		£	s.	d.	£	s.	d.
	<b>Rent, Rates and Taxes :</b>						
	York Corporation, Rent ... ..	10	0	0			
	Property Tax and City Rates ... ..	72	11	8			
	Waterworks Company's Rates ... ..	15	17	10			
108	Gardeners' Licence ... ..	2	5	0			
		<hr/>			100	14	6
	<b>Insurance :</b>						
	Fire and Plate Glass ... ..	18	4	6			
	Boiler ... ..	8	3	0			
	Employers' Liability ... ..	4	17	0			
	Fidelity Guarantee ... ..	1	5	0			
60	National Health and Unemployment ... ..	28	10	5			
		<hr/>			60	19	11
	<b>Salaries and Wages :</b>						
	Museums ... ..	1687	7	4			
	Lodge and Gardens ... ..	547	15	4			
2282	Staff Pensions ... ..	128	0	0			
		<hr/>			2363	2	8
	<b>General Expenses, Repairs and Renewals :</b>						
	MUSEUMS—						
	Repairs ... ..	18	19	0			
114	General Expenses ... ..	121	3	10			
		<hr/>			140	2	10
	GARDENS—						
	General Expenses ... ..	96	1	0			
96	Bowling Green ... ..	10	2	7			
		<hr/>			106	3	7
	ESTATE—						
195	General Expenses ... ..	94	0	1			
406		<hr/>			94	0	1
					340	6	6
	<b>Lighting and Heating :</b>						
97	Coal and Coke ... ..	109	9	8			
10	Gas ... ..	10	8	3			
56	Electricity ... ..	64	17	3			
163		<hr/>			184	15	2
	<b>Printing and Stationery :</b>						
19	General ... ..	33	3	8			
40	Annual Reports and Proceedings ... ..	51	16	0			
59		<hr/>			84	19	8
46	Lecture Fees ... ..				69	6	0
	<b>Miscellaneous :</b>						
43	Picture Postcards, etc. ... ..				27	0	8
12	Telephone Rent and Calls ... ..				12	19	4
14	Postage and Receipt Stamps ... ..				15	0	0
		<hr/>					
	Balance—Excess of Income over Expenditure				£3259	4	5
					137	13	6
		<hr/>			£3396	17	11
		<hr/>					
150	Transfer to St. Mary's Abbey Restoration Fund ... ..				100	0	0
39	„ „ Fabric Fund ... ..				49	8	9
11	Additions to Museum ... ..				43	13	11
49	„ „ Library ... ..				51	5	9
—	Subscriptions in arrear not recoverable ... ..				4	0	0
	Balance carried forward... ..				61	6	2
		<hr/>			£309	14	7
		<hr/>					

AND EXPENDITURE ACCOUNT for the Year ended 31st December, 1937.

		INCOME.							
Last Year	Subscriptions :					£	s. d.	£	s. d.
	Members ... ..	...	...	...	...	619	4 0		
	County Members ... ..	...	...	...	...	1	0 0		
	Lady Subscribers ... ..	...	...	...	...	30	1 0		
	Associates ... ..	...	...	...	...	4	0 0		
	Ticket Holders (less Refunds) ... ..	...	...	...	...	8	0 0		
	Keys of Gates ... ..	...	...	...	...	65	8 9		
742						<hr/>		727	13 9
	<b>Bowling Green :</b>								
	Members' Subscriptions ... ..	...	...	...	...	28	0 0		
	Locker Rents and Green Fees ... ..	...	...	...	...	2	12 0		
25						<hr/>		30	12 0
	<b>Donations :</b>								
	Catholic Pilgrimage ... ..	...	...	...	...	5	0 0		
	York Corporation—Meteorological Grant ... ..	...	...	...	...	5	0 0		
	York and District Field Naturalists' Section ... ..	...	...	...	...	5	0 0		
10						<hr/>		15	0 0
	<b>Rents :</b>								
	St. Mary's Lodge ... ..	...	...	...	...	65	0 0		
	Baths Cottage, Marygate ... ..	...	...	...	...	28	12 0		
	Shop, No. 10 Bootham ... ..	...	...	...	...	25	0 0		
	York Diocesan Training College—Boat Yard ... ..	...	...	...	...	5	0 0		
	York Waterworks Co.—Shed ... ..	...	...	...	...	15	0 0		
	Do. Light ... ..	...	...	...	...	1	0 0		
	St. Olave's Church Council—Light ... ..	...	...	...	...	1	0 0		
	Mr. Hill—Notice Board ... ..	...	...	...	...	1	0 0		
	Post Office—Wayleaves ... ..	...	...	...	...	1	2 0		
	York Relay Services (1934) Ltd.—Wayleaves ... ..	...	...	...	...	5	1 0		
	Garage ... ..	...	...	...	...	5	0 0		
139						<hr/>		144	18 0
102	Letting of Rooms for Lectures and Meetings					83	12 6		
						<hr/>		228	10 6
452	<b>Gate Money</b> ... ..	...	...	...	...			424	18 3
1876	<b>Dividends and Interest</b> ... ..	...	...	...	...			1914	10 2
	(for particulars see page 16).								
	<b>Miscellaneous :</b>								
60	Sale of Picture Postcards, Plans, Reports, etc....							55	13 3
								<hr/>	<hr/>
								£3396	17 11
	Balance brought forward from last year ... ..	...	...	...	...			172	1 1
	Balance of 1937 Income as above brought down							137	13 6
								<hr/>	<hr/>
								£309	14 7

Details of Dividends and Interest, 1937, carried into the  
General Income and Expenditure Account.

DR. TEMPEST ANDERSON BEQUEST.

<u>Capital.</u>	<u>Net Income.</u>			£	s.	d.
£4,314 13s. 2d. 3½% War Stock ... ..	151	0	2	£		
£2,000 4½% Conversion Stock, 1940-44 ... ..	78	15	0			
£8,000 Dominion of Canada 4% Registered Stock, 1940-60 ... ..	242	0	0			
£8,000 New Zealand Government 4% Inscribed Stock, 1943-63 ... ..	242	0	0			
£5,777 2s. 6d. South Indian Railway Co. Ltd., 4% Registered Debenture Stock, 1945 ... ..	174	15	1			
£5,700 London & North Eastern Railway 4% First Preference Stock ... ..	216	12	0			
£2,500 London & North Eastern Railway 4% Second Guaranteed Stock ... ..	75	12	6			
£3,219 3s. 5d. Bank of England Stock ... ..	292	2	10			
£45 Deposit at Midland Bank ... ..		9	0			
Rents of Shops and Dwelling-houses, Nos. 32 & 34, Bootham ... ..	65	0	0			
	1,538	6	7			
Income Tax recovered (1936/7) ... ..	338	10	6			
				1,876	17	1

MR. RAWDON BEQUEST.

£918 8s. 9d. India 3% Registered Stock ... ..	20	16	10			
Income Tax recovered ... ..	6	10	8			
				27	7	6

MR. ST. QUINTIN BEQUEST.

£247 11s. 2d. 3½% Conversion Stock ... ..	6	11	1			
Income Tax Recovered ... ..	1	0	6			
				7	11	7

£80 Deposit at Midland Bank, Ltd. ... ..					16	0
Bank Interest less Commission ... ..					1	18
					1,914	10
					2	

Memo:—The above items are shown less tax, if deducted.  
Tax so deducted is brought into account in the  
year in which it is recovered.

THE TREASURER'S ACCOUNT IN CONNECTION WITH THE FUND FOUNDED BY  
THE LATE WM. REED, ESQ., FOR SPECIFIC PURPOSES, 1937.

Dt.	INCOME.	£	s.	d.	EXPENDITURE.	£	s.	d.
	To Balance brought forward	32	10	11				
	„ Interest on £579 12s. 5d. 4% Consolidated Stock, less tax...				By New Books and Binding			
	„ Interest on £650 placed on Deposit with Midland Bank, Ltd. ...	8	13	11	„ Balance—Excess of Income over Expenditure	7	10	6
	„ Income Tax recovered	2	2	9		36	16	5
	„ Bank Interest	3	0					
		£44	6	11		£44	6	11

BALANCE SHEET.

Dt.	£	s.	d.	Cr.	£	s.	d.
Amount of Fund on 31st December, 1937	686	16	5				
				£579 12s. 5d. 4% Consolidated Stock			
				Balance at Midland Bank, Ltd.	36	16	5
	£686	16	5		£686	16	5





**Dr. ST. MARY'S ABBEY RESTORATION FUND, 1937. Cr.**

INCOME.	£	s.	d.	EXPENDITURE.	£	s.	d.
To Balance brought forward	...	128	16	By Repair of Abbey	...	831	8
„ Subscriptions	...	112	15	„ General Expenses	...	1	10
„ Amount transferred from Fabric Fund	...	89	8	„ Bank Interest and Commission	...	6	14
„ Balance	...	508	11				
					<u>£839</u>	<u>12</u>	<u>7</u>

**STATEMENT OF FUND.**

	£	s.	d.		£	s.	d.
To Subscriptions—1929 Appeal	...	432	2	By Repair of Abbey	...	1086	5
„ „ —1935 Appeal	...	787	13	„ Repair of Hospitium	...	4772	6
„ Champney Bequest	...	2141	15	„ Electric Heating	...	265	18
„ Proceeds of Sale of Property	...	1944	12	„ Supervisor's Fees	...	40	10
„ Fabric Fund	...	506	8			<u>5078</u>	<u>14</u>
„ St. Mary's Abbey Wall Fund	...	28	1	„ General Expenses—1929 Appeal	...	48	14
„ War Stock Interest	...	12	7	„ „ —1935 Appeal	...	55	14
„ Profit on Sale of War Stock	...	3	4	„ Bank Interest and Commission	...	95	7
„ Amount due to Midland Bank, Ltd.	...	508	11				
					<u>£6364</u>	<u>16</u>	<u>1</u>

MILLION SHILLING FUND, 1937.

	£	s.	d.	
INCOME.				
To Balance brought forward	53	6	2	
„ Bank Interest	...	...	...	
	...	...	10	0
	£53 16 2			
EXPENDITURE.				
By Balance	...	...	...	
	£53 16 2			

STATEMENT OF FUND.

	£	s.	d.	
To Subscriptions received to 31st December, 1937	970	4	2	
„ War Stock Interest	...	...	...	
„ Bank Interest, less Commission	109	9	2	
„ Profit on Sale of War Stock	...	...	...	
	...	...	0	6
	...	...	0	4
	£1100 1 8			
EXPENDITURE.				
By New Cases	...	...	...	
„ General Expenses	...	...	...	
„ (Printing and Stationery, etc.)	...	...	...	
„ Balance at Midland Bank, Ltd.	...	...	...	
	...	...	53	16
	£880 8 0			
	£1100 1 8			

## FABRIC FUND, 1937.

Dr.		£	s.	d.	Cr.
INCOME.					
To Balance brought forward	...	41	0	7	
„ 1 <sup>st</sup> th Income Tax recovered	...	49	8	9	
		£90 9 4			
EXPENDITURE.					
By St. Mary's Abbey Restoration Fund...	...			89	8 9
„ Balance ...	...			1	0 7
		£90 9 4			

## STATEMENT OF FUND.

		£	s.	d.	
To 1 <sup>st</sup> th Income Tax recovered	...	491	14	0	
„ War Stock Interest	...	11	0	6	
„ Bank Interest, less Commission	...	2	9	0	
„ Profit on Sale of War Stock	...	2	5	3	
		£507 8 9			
By St. Mary's Abbey Restoration Fund	...	506	8	2	
„ Balance at Midland Bank, Ltd.	...	1	0	7	
		£507 8 9			

## THE YORKSHIRE PHILOSOPHICAL SOCIETY.

## LIABILITIES.

	£	s.	d.
General Fund. ... ..	44,910	5	3
Balance of Income and Expenditure Account ...	61	6	2
Subscriptions, paid in advance ... ..	21	15	0
Sundry Creditors ... ..	46	3	8

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45,039 10 1

**Funds for Specific Purposes.**

Mr. Wm. Reed Bequest ... ..	686	16	5
The H. J. Wilkinson Memorial Fund ... ..	188	5	2
Million Shilling Fund ... ..	53	16	2
Fabric Fund ... ..	1	0	7
Overdraft at Midland Bank, Ltd. St. Mary's Abbey Restoration Fund ... ..	508	11	6

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£46,477 19 11

The Values of the Investments are stated as at the date of acquisition.

The Market Value at 31st December, 1937, was £47,650 16s. 7d.

The properties 32 and 34 Bootham (Dr. Anderson Bequest) and St. Mary's Lodge, Baths Cottage, 10 Bootham, and the properties within the Museum Gardens are not valued for purpose of this Balance Sheet.

## GENERAL BALANCE SHEET, 31st December, 1937.

## ASSETS.

## General Fund.

## INVESTMENTS.

## DR. TEMPEST ANDERSON BEQUEST.

	£	s.	d.	£	s.	d.
£4,314 13s. 2d. 3½% War Stock ... ..	4,163	3	9			
£2,000 4½% Conversion Stock, 1940-44 ... ..	2,000	0	0			
£8,000 Dominion of Canada 4% Reg. Stock, 1940-1960 ... ..	7,904	7	0			
£8,000 New Zealand Govt. 4% Inscribed Stock, 1943-63 ... ..	7,968	14	6			
£5,777 2s. 6d. South Indian Railway Co. Ltd., 4% Regd. Deb. Stock, 1945 ... ..	5,400	0	0			
£5,700 L. & N.E. Railway 4% 1st Prefce. Stock... ..	8,131	9	0			
£2,500 L. & N.E. Railway 4% 2nd Guar. Stock ... ..						
£3,219 3s. 5d. Bank of England Stock ... ..	7,967	11	0			
Deposit at Midland Bank, Ltd. ... ..	45	0	0			
	<hr/>			43,580	5	3

## MR. RAWDON BEQUEST.

£918 8s. 9d. India 3% Registered Stock ... ..	1,000	0	0
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## MR. ST. QUINTIN BEQUEST.

£247 11s. 2d. 3½% Conversion Stock ... ..	250	0	0
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Sundry Debtors... ..	21	8	5
Balance at Midland Bank Ltd.: Deposit Account	80	0	0
do. Current Account	107	16	5
	<hr/>		
	45,039	10	1

## Funds for Specific Purposes.

## MR. WM. REED BEQUEST.

£579 12s. 5d. 4% Consolidated Stock ... ..	650	0	0
Balance at Midland Bank Ltd. ... ..	36	16	5
	<hr/>		
	686	16	5

## MR. H. J. WILKINSON MEMORIAL FUND.

£164 8s. 6d. 4% Consolidated Stock ... ..	185	0	0
Balance at Midland Bank, Limited ... ..	3	5	2
	<hr/>		
	188	5	2
Balance at Midland Bank Ltd. (Million Shilling Fund)... ..	53	16	2
Balance at Midland Bank Ltd. (Fabric Fund) ... ..	1	0	7
St. Mary's Abbey Restoration Fund (Deficit) ... ..	508	11	6
	<hr/>		
	£46,477	19	11

## Auditor's Report:—

I have compared the above Balance Sheet and foregoing Accounts with the Books, Accounts and Vouchers relating thereto, and certify them to be correct. I have verified the existence of the Cash Balances and Investments.

York: 10th February, 1938.

ARTHUR D. GLADWIN, F.L.A.A.

INNES N. WARE, *Hon. Treasurer.*



The Yorkshire Museum,  
YORK.

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Report  
of the  
Museum Committee  
FOR THE YEAR 1937.

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PRINTED BY ORDER OF THE COUNCIL.

1938.





# THE YORKSHIRE MUSEUM, YORK.

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*Keeper :*

WALTER E. COLLINGE, D.Sc., M.Sc., F.S.A., F.L.S.  
M.B.O.U., Hon. F.R.H.S.

*Honorary Curators :*

ARCHÆOLOGY - - - W. HARVEY BROOK.

GEOLOGY - - - - -

BOTANY - - - - - CHARLES ALLEN.

ZOOLOGY - - - - SYDNEY H. SMITH, J.P., F.Z.S.

ENTOMOLOGY - - -

ASTRONOMY - - - J. SCOTT.

NUMISMATICS - - - GEOFFREY THOMPSON, M.A., F.S.A.

CERAMICS - - - - ARTHUR HURST, A.K.C.

*Assistants :* (MISS E. HOLMES.  
{ FRANCIS T. G. WHITE.

*Chief Clerk :* ARTHUR COLLEY.

*Museum Attendant :*  
WILLIAM RAFTON.

*Hospitium Attendant :*  
MISS G. FISHER.



## THE YORKSHIRE MUSEUM.

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### REPORT FOR THE YEAR 1937.

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A marked increase in the number of students who have worked at or consulted the Collections during the past year is a gratifying indication of the vitality of the Museum.

The Yorkshire Numismatic Society held its Summer Meeting in the Museum on July 24th.

The Yorkshire Architectural and York Archaeological Society continues to hold its meetings and house its Library in the Museum.

Special Exhibits. An exhibition of Coronation Medals has attracted numerous visitors. These cover the period from Edward VI, 1546, to that of Edward VII, 1902, the Jubilee Medal of George V, and the "Abdication" Medals of Edward VIII.

EDUCATIONAL WORK.—During the year, 625 children from Schools in the City attended the Museums for study and instruction, and 17 from the City School of Arts and Crafts.

The Collections or Specimens have been studied by:—Peter Holm, Director of the Aarhus Museum, Jutland; Dr. W. J. Arkell, M.A., University Museum, Oxford; G. F. Wilmot, Ampleforth; Miss M. Kitson Clark, M.A., Leeds; Miss D. Hill, Sedgwick Museum, Cambridge; Mr. J. L. Rowe, York; S. Burr, M.Sc., the University, Leeds; G. L. Gettins, Leatherhead; Wm. T. Bather, Nutley, N.J., U.S.A.; Leonard Peckitt, Allentown, Penn., U.S.A.; Gilbert Archey, O.B.E., M.A., Auckland Institute and Museum, N.Z.; Dr. Anatol Heintz, Paleontologische Museum, Oslo; Miss Madeleine Fritz, Toronto; J. N. L. Myres, M.A., F.S.A., Oxford; John Zollinger Miller,

Eric, Pa., U.S.A. ; A. C. Wood, Oxford ; W. Kinge, Oslo ; Randall Davis, F.S.A., London ; James Wright, F.R.S.E., Edinburgh ; Will C. Priestley, Corinium Museum, Cirencester ; Dr. Elwer Belt, Los Angeles, Cal., U.S.A. ; W. H. Friend, Oxford University ; H. T. Morley, B.Sc., Reading Museum ; The Rev. J. F. H. Carr-Greg, Nuneaton ; Jacob Kramer, Leeds ; T. D. Kendrick, M.A., F.S.A., British Museum, London ; L. F. Spath, D.Sc., F.G.S., British Museum (Nat. Hist.), London ; John A. Knowles, F.S.A., York ; and A. C. Indianos, Cyprus Museum.

Turning to the different departments of the Museum :—

The Museum of Mediaeval Architecture.—The work of maintaining the Collection in good order—finding places for such fresh details as have come to hand during the past year (1937), placing on view many treasures obtained years ago, yet still on the waiting list—is a task which faces the Honorary Curator with the difficulty of finding space to display a multitude of both small and large details of interest.

The objects are in a different category from the ordinary museum pieces, being difficult and clumsy to handle, very liable to damage, requiring much thought and exercise of judgment before one can place them, safely poised, in their allotted positions. The general effect has to be studied so as not to spoil the existing arrangement, which will ever govern any attempt at a re-grouping of the mass of objects already exhibited.

A criticism sometimes expressed is “it’s all too crowded together”—the reply to which is—that as finds present themselves, we must accept or lose opportunities which will never occur again ; take as an example an ancient church scheduled for destruction, as for instance Christ Church, King’s Square, York, which exhibited many curious features of various dates, an epitomé of the history from very early times of a building erected on one of the most interesting of all the ancient sites in this city. In this case, although we were entitled to receive all and any architectural features of note which were reasonably moveable, yet out of four curiously carved heads from beneath the neckings of the caps of the pillars of the ground arches (north and south arcades and east arch of the Tower), we only got *one* out of the *four* existing when the fabric was thrown down, which meant so many architectural records of the fabric of Christ Church dispersed, or irretrievably lost.

The same fate might have overtaken the details of the Tees Valley marble "Shrine of the Translation of the Relics" of St. William of York, from the choir of York Minster, and those of his Tomb-Shrine of Tadcaster stone, from the Nave, found in Precentor's Court in 1928, had not Mr. G. J. Wolstenholme so generously consented to give them to the Collection.

All these exquisitely carved and massive details had to be found room for, be cleaned and become numbers in the Collection—all have passed through the hands of the Honorary Curator and those of the friend who has helped him so splendidly with the Collection for many years. In this connection may be mentioned the great importance of the thorough cleaning and freeing from lime mortar and accumulations of solid dirt, which clog and fill up the hollows of the mouldings, carvings, folds of drapery of images, etc., which treatment often reveals unsuspected excellence of execution, beauty of line, and adds force, life, and artistic value to these relics of the unsurpassed work of the Mediaeval sculptors, carvers and master masons.

During the past four years, 1933-1937, a certain necessary alteration in the arrangement of various exhibits has taken place, which entailed much troublesome work in the matter of keeping the correct sequence in the serial numbering; this has at last been satisfactorily accomplished.

List of Architectural Details obtained from the "throwing down" of Christ Church, King's Square, York, during the months of April, May, June, 1937.

1. Large carved cap (foliage) of South East pier of the Eastern arch of the Tower.
2. Large carved cap (foliage) of South West pier of Eastern arch of the Tower. *Note.*—The carved foliage work resembles that in Patrington Church, East Riding of Yorkshire.
3. Two Late Norman arch details with roll moulds enclosed by chevrons, enriched by small "*nail-head*" ornament.
4. Grave slab 1 ft.  $11\frac{3}{4}$  in.  $\times$  1 ft.  $4\frac{3}{4}$  in. on which is carved a cross flory, 13th Cent. work.
5. A half-circular flat stone slab 6 inches thick, in which are cut two half circular openings of unequal size—the larger having a chamfer and bold roll mould, the lesser, a hollow mould enriched with small finely cut dog-tooth ornament, Early English work.
6. Small fragment of hollow mould with two "Dog teeth."
7. Grave slab, formerly inserted in the East wall of the little West Porch, 1 ft.  $4\frac{3}{8}$  in. wide,  $4\frac{3}{4}$  in. thick, and 1 ft.  $4\frac{5}{16}$  in. long.

This has probably commemorated a child, and has an incised cross upon it standing on a calvary of two steps, or grades; it is a foliated cross, the head and arms terminating in trefoils. It appears to have been reduced in size to fit its new position in porch wall when this church was restored in 1862.

Many descriptive notices have been written by the Honorary Curator—two of them are of particular interest; 1. "The Dissolution of the Abbey of Gloucester" taken from Hart's History of Gloucester. 2. "A monastic day," by R. Liddesdale Palmer, A.R.I.B.A. (This extract gives the daily routine as it was formerly carried out at St. Mary's when the Community was in being). These framed notices are hung on the two pillars of the entrance to the Vestibule of the Chapter-house from the East Cloister, and are exhibited with the idea of impressing on the minds of all persons visiting the Undercroft of the Museum, the fact that they are on the actual site of that part of the Monastery which became the stage where the tragedy of the Dissolution was enacted, and that a certain reverence should temper their behaviour: such a reminder will surely arouse, and perhaps stimulate, their interest in the hundreds of exquisite objects by which they find themselves surrounded, and be a restraining influence against the power of the Evil Spirit of Destruction which stalks unashamed in our midst to-day, destroying our national heritage.

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An exhibit lent by Sir Wilfrid and Lady Thomson. Image of the Blessed Virgin Mary supporting the Holy Child with Her right hand on Her right knee.

This important sculpture is cut out of a single stone, the dimensions of which are: height 4 ft. 4 in., width 1 ft. 11 in., depth 9½ in. The Virgin is seated enthroned under a canopy of Late 14th century work, with gracefully flowing cusped arches, finialled, crocketed, groined and panelled beneath its cornice with small arcading, but much weathered.

The folds of the Virgin's robe are carefully disposed, the crowned head, face, flowing ringlets of hair falling on the shoulders, have been mutilated and defaced, as has the head and face of the Holy Child.

It is a gable sculpture, and is said to come from the dissolved Benedictine Priory Church of St. Clement.

A much more feasible explanation of the source from which this sculpture was taken is, that it comes from the East gable of the ancient Hospital of St. Thomas of Canterbury, which stood outside Micklegate Bar, and where such an image "much broken

or decay'd by Time" existed in 1730, according to Thomas Gent. This old hospital was pulled down in 1862. In either case, the Hon. Curator hopes that Lady and Sir Wilfrid Thomson will be so gracious as to convert the loan into a gift to the Collection.

NOTE.—In order to display this sculpture to proper advantage the Hon. Curator designed an iron stand for it, which was admirably carried out by the late Mr. A. Hardgrave, whose loss we deplore ; and the cost was borne by the Society.

#### ADDITIONS TO THE COLLECTION.

1. A Late Norman cap belonging to the Pointed Norman work of the Chapter House Entrance, St. Mary's Abbey, found walled as ashlar in the Closure Wall, Marygate, when taking the wall down to rebuild and straighten it. Presented by H.M. Office of Works.

2. A detail (one stone) roll and chevron mould with small "nail-head" work, from the South jamb of the South Window opening of the West wall of the Chapter-House of St. Mary's. Presented by Mr. F. W. Laughton, Heworth Green.

3. A Transitional Norman laurel and volute cap, probably from St. Michael's Church in Spurriergate, or, from the Choir of the Priory Church of the Holy Trinity, Micklegate. The Choir and North Transept of Holy Trinity were excavated in 1904 by W. Harvey Brook and the laurel caps found there were similar in design. This laurel cap was on a rockery at "Trentholme," The Mount, York. Presented by Mr. T. F. Clark.

4. Small circular base of shaft on a five-sided chamfered engaged sub-base, the circular upper base has a roll mould of  $5\frac{5}{16}$  inch diameter with sinking of  $\frac{3}{16}$  of an inch for shaft. It is a fine little base in good state ; it was found loose on the site of cottages built in 1692 next to the Mount Hotel, when these were demolished in August, 1937. Bought and presented by a friend.

5. Norman base of nook shaft, walled as ashlar by the builders of the Decorated work of Nave of St. Mary's, found built in North wall of Nave of the Abbey.

6. Norman base for twin shafts, found walled in masonry of the N. West Turret of the West gable of nave of St. Mary's, 1937. This may be a detail from the Norman Galilee, demolished when the present Decorated Nave replaced the grand Norman work. The Galilee or Narthex, which had a pent-house or lean-to roof abutting on the Norman West Front gable wall, as at Fountains Abbey, was not repeated in building the new Nave, but the space occupied by it was incorporated, adding dignity and room for processions, etc. Compline was formerly recited in the Galilee, and afterwards, in the two westernmost bays of the new Nave.

7. A curious carving of a double-headed eagle with wings ingeniously displayed, each eagle head holding in its powerful open beak a round fruit. When found it only showed indistinct

traces of ordered design, gradually, as the lime mortar and coagulated dirt were cleared out, a spirited study of the king of birds was made manifest. It appears to have been a terminal, and is a noteworthy bit of work. Found and presented by a friend.

8. An Early English sill-base of a triple Lancet window, the stone is 1 ft. 4 in. wide on face, 1 ft.  $7\frac{1}{4}$  in. in depth from back to front, and  $9\frac{3}{16}$  in. high, has glass line  $\frac{11}{16}$  in. wide, by  $3\frac{5}{8}$  in. deep, shows setting-out lines, the moulds of the base of shaft and dividing pier of Lancets, are very chaste and elegant—it has come from one of the missing gable ends of the upper floor of the Hospital of St. Leonard.

9. Detail of the cornice corbel table of parapet of the Norman Abbey Church of St. Mary's, has a bold hollow mould 5 in. across, with large ball ornament, the balls are  $3\frac{1}{2}$  in. in diameter with an interval of 2 in. between, there are 3 balls on this detail. Four of these corbels are built in beneath wall seat of the North side of the West Door interior face, beneath the turf, at level of floor of the new Decorated Period Church.

10. Carved stone head found in excavating at the corner of Gillygate and Bootham, 20 feet below the surface, and probably one of the heads from Bootham Bar. Presented by Mr. H. C. Greenwood, Stonegate, York.

NOTE.—Judging from the position of the street excavation from which this crudely-carved head was recovered and the depth at which it is said to have been found, it may have been a battlement ornament of the outer gate of the Barbican, the outwork of the Bar, which extended to this point. It is possible that this stone head in the course of an assault in a siege became dislodged and fell with a section of masonry into the bed of the moat, the depth of which would be from twenty to twenty five feet.

11. Six spent lead bullets found adhering to the face of the ashlar of the interior of the North wall of the nave of St. Mary's Abbey Church—they were taken off the surface of the wall blind-arcade of the 3rd and 4th Bays, and are relics of the scare of invasion by the French under the Emperor Napoleon in 1814, when this wall was used as a Butts by the York Volunteers. Some unused, whole bullets were also found in crevices in the wall. Lead bullets from the interior face of the wall of the Close, relics of the Siege of York in 1644, when the Parliamentary forces, under General Fairfax, mined the Marygate Tower, broke in, and after a stiff fight on the Bowling Green where many were killed, were driven out by the Royal troops occupying the King's Manor. Presented by Mr. W. A. Cooper.

12. A large square Piscina from the Benedictine Priory Church of the Holy Trinity, Micklegate, York.

13. A fine massive Early English corbel from the parapet wall of the Nave of Holy Trinity Priory Church, circa 1120. This handsome detail the Hon. Curator intended to use in further work of restoration of that church in 1905. It is a good example of the work of that Period. Presented by W. Harvey Brook.



14. A very elegant Transitional cap, tall and spherical in shape with chaste decoration, found loose amidst debris in excavating for the foundation of the South-West pavilion of the new Public Library in 1933. It resembles in type, but seems of later date, caps in the magnificent Crypt of Canterbury Cathedral. A corner of the abacus and part of the cap were broken off but have been so skilfully joined together by a friend that the fracture is nearly imperceptible. On the same site in St. Leonard's Hospital a small base of a pillar was found,  $10\frac{1}{2}$  in. square and  $5\frac{1}{2}$  in. high, which is of the Transition period but seems nearer the Early English work. It has two circular roll moulds upon a square sub-base, it may have been the base of a slender shaft with such a cap as that before mentioned.

The Hon. Curator trusts that it will be understood that in the last three years a number of as yet unspecified objects have been added to the Collection, also that dozens of details of interest from his excavation of parts of St. Mary's Abbey in 1912-1913, are still *waiting for glazed cases* in which to display them. The large room in the Basement of the Museum under (and with the same area as) the Council Room, allotted to the Hon. Curator years ago, and which he proposed to make into an attractive exhibition room, has served as a store for the accumulated and varied material gathered from many sources.

ETHNOLOGY.—Amongst the additions to the Collections are a First Searcher's Badge, dated 1700, presented by Lady Thomson ; an old French Clock with Remontoire escapement, presented by R. J. A. Bunnett ; silk Embroidered Apron made by Bridget, the eldest daughter of Oliver Cromwell, sometime between 1645 and 1680, presented by Major H. A. Tapp ; Danish Weaver's Hand Comb, presented by W. D. Edwards ; Danish antiquities found in Pavement, York, presented by Thomas Hunter : Ivory Walking Stick (c. 1730), presented by Mrs. B. W. Peel ; Brass Tobacco and Pipe Box, presented by T. Goulton Leonard.

ASTRONOMY.—All the instruments are in good adjustment and order. The Observatory is open to members on lecture nights, providing the weather is favourable, and at other times by arrangement.

BOTANY.—The H. J. Wilkinson Memorial Library.—This valuable collection of books on Botanical Subjects has been of great use during the year, mainly for reference purposes.

Herbarium. The specimens are in good order and have been studied by Botanists in fair numbers. One valuable and interesting addition has been made in the form of a

collection of Ferns made chiefly by Henry Y. Whytehead, M.D., about the year 1875. The collection was brought into good order and added to by his son the Rev. R. Y. Whytehead in 1937 and presented by him to the Society. The specimens are named and the locality given so that the collection forms a useful record with which to compare the present-day distribution of some of the rarer ferns.

The Gardens. Attention has been given by the Gardens Committee to the Shrubs in the Society's Grounds, and a beginning has been made with a plan whereby many of the commoner shrubs will be gradually replaced by flowering species of greater scientific and aesthetic value. The repairs which have been recently carried out to the Wall on the North Side of the Bowling Green necessitated a complete replanting of the border alongside the wall, and the Committee have taken the opportunity to construct an Herbaceous border on this site, which, it is felt, will be a great improvement to the appearance of this part of the Society's property.

ZOOLOGY.—The collections continue to grow, but their satisfactory display is considerably cramped by lack of space. Some slight changes have been made in the disposition of specimens in the Vertebrate Gallery to their great advantage.

The collection of British Birds' Eggs is very old and many of the specimens are damaged and very much faded, and with a view to preserving them from further harm, particularly from light, they are being transferred to cabinets where they will be available for study as usual. The table cases thus set at liberty will become available in the Geological Department. May we appeal to collectors of birds' eggs possessing duplicate authentic clutches or collections which can now be spared, to present them to the Society where they will be of much greater public service in bringing our Oological section thoroughly up-to-date. Dr. Collinge or the Hon. Curator will be very pleased to advise and select from such offers.

Amongst recent acquisitions mention may be made of two fine male stoats, mounted and presented by Mr. John C. Kirk. The stoat is fairly common around York where it is exceedingly unpopular amongst gamekeepers and poultry farmers. It is easily distinguished from the weasel by its larger size and dingier brown fur, and particularly the black tip to its tail. In colder latitudes the fur turns white except the black tail tip and the creature is an "ermine." Specimens

in this white fur are occasionally obtained in the neighbourhood of York, and some good examples may be seen in our mounted collections. There are also many good skins in the Oxley Grabham cabinets.

NUMISMATICS.—The collections of Coins, Medals and Abbey Tokens are under constant revision with a view to improving the average condition by exchange, where possible.

Roman coins of 2nd, 3rd and 4th centuries, and one Edward II Penny, have been found in local building operations.

By exchange of duplicates we have added four Anglo-Saxon and 14th century coins of York Mint.

The Barstow collection of Indian Coins is being classified at the British Museum, by the courtesy of the Director of the Department of Coins and Medals.

The Trustees of the British Museum have made to the Society a most welcome presentation of the complete issue of the new British Museum Catalogue of Roman Imperial Coinage, of which the first three volumes have already been published. This work is of great value to our Numismatic Library.

The Medal Collection has been improved by three donations and by sundry exchanges.

The Society's collection of Coronation Medals of various reigns, which is a fairly complete series, has been on view in the Central Hall, and has interested a large number of visitors.

The recently begun collection of Yorkshire and other Bank Notes issued by private Banks is gradually growing and has been increased by several gifts and now numbers over 40 specimens. The courtesy of the British Museum in repairing some tattered specimens by their experts is highly appreciated. In due course the collection will be suitably arranged and indexed.

The original Deed of Settlement of the York Union Bank, 1833, containing several interesting signatures, has been presented by Mr. E. R. Dodsworth.

It is hoped that members and their friends will bear in mind the interest of the Society in coins, medals and old Bank Notes, especially of local issue. Reports of any finds of Roman or other coins, with permission to examine, are much appreciated, and it is a great assistance to the Society's work if the Keeper may be informed promptly of any such finds.

CONCHOLOGY.—During the year the Council purchased the Sowden Collection of Land and Freshwater Shells. They would again express their thanks to the officers and members of the Natural History Section for the financial assistance they gave in the acquisition of this valuable collection.

CERAMICS.—The Collections in the Ceramic Department of the Museum have been maintained in good order during the past year. A few minor additions have been made to the collection. The loan collection of Yorkshire silver has been cleaned and rearranged, and several rather important additions have been made. A York Inkstand and an interesting oval pass bearing the words "Theatre Royal York No. 1" and on the reverse "Mr. Sanderson," the only silver pass known, is shown in the Silver case in the Central Hall. Unfortunately the date has not up to the present been ascertained. Two spoons bearing the Leeds Assay mark have been added, so that the collection now shows silver bearing the Assay marks of York, Hull and Leeds, the only three of the older towns using them in the county.

LIBRARY.—There has been an expenditure of £51 5s. 9d. on the Library during the year. This includes £5 12s. 3d. on the purchase of new books; £37 14s. 6d. on periodicals, and £7 19s. 0d. on binding. In addition to this, £7 10s. 6d. has been expended on books which have been paid for out of the Reed Bequest.

Special mention may be made of the valuable works presented by the British Museum (Natural History), the Zoological Society of London, and the Royal Society of Edinburgh.

During the year 42 volumes have been added by purchase and 27 by presentation, in addition to the usual unbound memoirs.

The number of volumes borrowed was 179.

METEOROLOGY.—Statistics of Station: Longitude 1° 5' W.; Latitude 55° 57' N.; height above mean sea level 56 feet.

The rainfall for 1937 was above normal, being 28.46 inches, 4.26 inches above the average for the preceding 50 years. The wettest months of the year were April, May and February, when the totals for the months were 3.48, 3.45 and 2.98 inches respectively. September, June and July were the driest months with 1.06, 1.74 and 1.75 inches respectively.

Temperature ranged from 84° F. on July 3rd to 23° F. on December 20th ; the range of temperature for 1937 being thus : 61° F. as against 65° F. in 1936. A mean pressure of 1012.5 millibars (1,000 millibars=29.531 inches of mercury) at M.S.L. (corrected for diurnal variations) has been recorded as against 1012.9 millibars for 1936. February gave the lowest mean for the year, 999.7 millibars, March next with 1005.2 millibars. August was highest, 1018.7 millibars, and November next with 1018.3 millibars. The extreme range was 2.025 inches as compared with 1.937 inches in 1936. The highest reading of the barometer was taken December 27th at 9-0 a.m. viz. ; 30.748 inches, and the lowest on February 27th at 9 p.m., viz. ; 28.723 inches.

Snow or rain fell to the amount of 28.46 inches or 723.0 mm., as against 24.84 inches or 631 mm. for 1936, an increase of 3.62 inches or 92.0 mm. for the year. The heaviest fall of the year occurred on October 23rd when 31.8 mm. (1.25 inches) fell.

Observations of Winds show that during 1937 we had "strong" winds on 4 days (force 4-7 on scale 0-10) as against 13 in 1936, and "calm" on 5 days, 1 day more than 1936. The chief winds have been observed as S.(103), N.(96), W.(70), N.W.(40), S.E.(17), and S.W.(14).

Thunder was heard on 6 days, snow or sleet fell on 23 days, as against 14 days in 1936 ; and there were hailstorms on 2 days, as against 6 days the previous year.

Bright Sunshine was recorded 1152.4 hours as against 1303.6 hours in 1936, a decrease of 151.2 hours for the year. The daily mean was 3.16 hours, and the percentage of possible sunshine 26, as against 29 in 1936.

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It is urgently requested that any discovery of Archaeological interest in the neighbourhood may be brought to the notice of the Keeper of the Museum, or the Honorary Curators, as early as possible.

The Keeper of the Museum will be pleased to give any information in his power, and may be seen daily, Museum engagements permitting.

## LIST OF SCHOOLS

AND OTHER ORGANIZATIONS THAT HAVE VISITED THE MUSEUMS DURING 1937.

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- Feb. 13th—Girls' High School, Sheffield.  
 March 30th—Edge Hill College, Ormskirk.  
 April 5th—Lower East Street Boys' School, Middlesbrough.  
 April 17th—W.E.A. Classes, Middlesbrough.  
 May 1st—Sedgley Bank College.  
 May 1st—Denby C. of E. School.  
 May 6th—Middlesbrough C. of E. Sunday Schools.  
 May 8th—Denby C. of E. School.  
 May 8th—Girls' High School, Middlesbrough.  
 May 13th—Acklam Hall Secondary School, Middlesbrough.  
 May 22nd—St. James' Choir, Woolfold.  
 May 27th—Notre Dame Collegiate School, Leeds.  
 May 27th—British Legion, Windermere.  
 May 29th—German Girl Students, Hamburg.  
 May 29th—Hollingworth Secondary School.  
 May 29th—Thoresby High School, Leeds.  
 May 31st—Caistor Conservative Association.  
 June 4th—Leigh C. of E. Senior School.  
 June 5th—Anglo-Italian Society (Leeds Branch).  
 June 5th—The Wheelwright Grammar School for Girls, Dewsbury.  
 June 8th—Cleveland Schools.  
 June 11th—Clowne and Hackerthorpe School.  
 June 12th—Kirkdale Choir.  
 June 12th—Central High School, Newcastle-on-Tyne.  
 June 12th—Cridling Stubbs, Mothers' Union.  
 June 14th—Aigbuth Women Citizens.  
 June 15th—Huddersfield Chapel.  
 June 16th—Wigginton School.  
 June 17th—Southdown Party (London).  
 June 18th—Tees-side School.  
 June 19th—Southdown Party (Brighton).  
 June 19th—Rotherham High School.  
 June 19th—Moss Council School, Doncaster.  
 June 21st—Rosse Street Chapel, Shipley.  
 June 24th—Senior Boys' School, Rossington.  
 June 26th—St. Michael's R.C. School, Wombwell.  
 June 26th—Old Westminsterians Club.  
 June 29th—St. Peter's School, Blackley.  
 July 1st—Hyde Park Senior Boys' School, Doncaster.  
 July 2nd—Bramley Council School, Leeds.  
 July 2nd—Grove Street Senior Mixed School, Barnsley.  
 July 3rd—Thurnscoe Senior Girls' School.  
 July 3rd—Wadsworth School, Hebden Bridge.  
 July 3rd—Sowerby Bridge Secondary School.  
 July 3rd—Doncaster School.  
 July 3rd—Skipton-in-Craven School.  
 July 5th—Belmont College, Harrogate.  
 July 7th—Crank Women's Institute.  
 July 9th—Stirling Street Boys' School, Doncaster.  
 July 10th—Kirk Sandal Council School.  
 July 10th—Junior Girls' School, South Elmsall.  
 July 10th—Scunthorpe Club.  
 July 15th—Appleton Roebuck Council School.  
 July 15th—Salts' Girls' High School, Shipley.  
 July 16th—Canadian Students.  
 July 16th—Boys' Senior School, Skellow.  
 July 16th—Retford Boys' School.  
 July 17th—Craven Street Mixed School, Hull.  
 July 19th—Mexborough Secondary School.  
 July 20th—Roundhay School, Leeds.

- July 22nd—Harrogate College,  
July 23rd—Blackpool Grammar School.  
July 30th—Holly Lodge High School, Liverpool.  
July 30th—O.T.C.  
Aug. 4th—Dutch Touring Association.  
Aug. 12th—Southdown Party (London).  
Aug. 19th—Southdown Party (London).  
Aug. 19th—Tadcaster P.M. Sunday School.  
Sept. 6th—Church Party, Broadstone, Hebden Bridge.  
Sept. 6th—Bolton Social Party.  
Sept. 7th—Literary & Scientific Society, Hebden Bridge.  
Sept. 25th—Bramham C. of E. School.  
Oct. 2nd—Central School, Dewsbury.  
Oct. 2nd—Gladstone Road Senior Boys' School, Scarborough.  
Oct. 7th—Yeadon South View School.  
Oct. 13th—East Ardsley Girls' School.  
Nov. 4th—Red House School, Marston Moor.

# CLIMATOLOGICAL SUMMARY—THE YORKSHIRE MUSEUM, YORK, 1937.

Height above Ground :—Thermometers 4 ft. Rain-gauge 1 ft.

1937.	Air Temperature in Degrees Fahrenheit.										Earth Temperature		Rainfall.			Weather.						Bright Sunshine.			
	Means of		Means of		Absolute Extremes.						At 1 ft.	At 4 ft.	Total.	in.	mm.	Day.	Precip. or more.	Precip. or more.	Snow.	Snow Lying.	Hail.	Thunder storm.	Total.	hr.	Per-cent- age.
	Max.	Min.	Max.	Min.	H. Max.	L. Min.	L. Max.	H. Min.	Day.	Day.															
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	hr.	Per-cent- age.
Jan.	45.2	36.4	40.8	56	22	24	15	34	49	3	3	18	21	13	4	4	0	0	0	26.7	0.86	11			
Feb.	45.9	36.5	41.2	54	3, 4, 14	30	12	36	47	3	3	15	19	12	3	2	0	0	0	66.0	2.36	24			
March	43.9	32.9	38.4	55	18	26	26	36	42	18, 20	11	11	18	14	10	7	2	1	1	83.4	2.69	23			
April	53.4	41.9	47.7	61	9, 23	28	1	47	49	8	16	16	19	15	0	0	0	0	0	78.3	2.61	19			
May	62.0	46.6	54.3	76	29	38	1, 3	47	56	24	11	11	15	9	0	0	0	1	1	169.0	5.45	34			
June	65.9	50.2	58.1	76	10	42	3	57	59	5	12	12	15	11	0	0	0	0	0	162.2	5.41	32			
July	70.4	54.2	62.3	84	3	46	29	62	62	13, 18	6	6	12	9	0	0	0	1	1	134.1	4.33	26			
August	70.7	53.6	62.1	83	3	47	27	62	61	5	11	11	13	6	0	0	0	3	3	164.6	5.31	36			
Sept.	64.0	48.3	56.1	75	6	39	21	54	59	6	17	17	14	5	0	0	0	0	0	131.2	4.37	34			
October	57.3	44.6	50.9	67	1	37	18	48	52	2, 7	23	23	12	7	0	0	0	0	0	56.5	1.82	17			
Nov.	46.7	37.3	42.0	56	2	26	22	37	51	2	5	5	12	8	0	0	0	0	0	52.2	1.74	20			
Dec.	40.6	32.5	36.5	55	24	23	20	33	44	2	5	5	22	15	6	16	0	0	0	28.2	0.91	12			
Totals	666.0	515.0	590.4	—	—	—	—	—	—	—	—	—	192	124	23	29	2	6	6	1152.4	37.86	—			
Means	55.5	42.9	49.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.16	3.16	26			



# CLIMATOLOGICAL SUMMARY—THE YORKSHIRE MUSEUM, YORK, 1937.

Latitude 53° 57' N. Longitude 1° 5' W. Height above Mean Sea Level 56 ft.

1937.	Mean Pressure corrected to 32° F. and lat. 45° and reduced to Mean Sea Level.				Air Temperature		Humidity.				Mean Amount of Cloud, 0-10		Cloud Amount, 9 a.m.				Wind, No. of Observations, 9 a.m.																
	9 a.m.		9 p.m.		9 a.m.	9 p.m.	Depression of Wet Bulb.		Vapour Pressure.		Percentage.		9 a.m.		9 p.m.		(Beaufort Scale).				Direction.												
	mb.	in.	mb.	in.	° F.	° F.	° F.	° F.	mb.	mb.	%	%	0	1-3	4-6	7-9	10	0	1-3	4-5	6-7	8	9	10	N	NE	E	SE	S	SW	W	NW	
Jan.	1007.7	29.76	1007.2	29.74	39.7	40.5	1.0	1.2	7.6	7.7	91	90	7.0	7.8	3	5	17	0	3	28	0	3	2	3	3	2	0	5	14	3	3	1	
Feb.	999.9	29.53	999.7	29.52	39.5	39.9	1.6	1.5	7.0	7.7	85	92	6.3	6.0	4	5	13	0	2	28	0	0	1	1	1	1	1	1	12	0	7	4	
Mar.	1005.2	29.68	1005.6	29.70	37.8	36.7	1.9	1.4	6.3	6.4	81	86	7.6	5.7	4	3	17	0	13	31	0	0	2	2	0	2	1	0	7	0	3	5	
April	1010.8	29.85	1010.8	29.85	46.5	46.7	2.3	2.4	8.9	8.8	82	81	8.9	6.3	1	0	21	0	8	29	1	0	1	1	1	2	0	0	8	1	3	6	
May	1016.6	30.02	1016.6	30.02	53.0	52.3	3.4	3.0	10.6	10.5	77	79	7.6	6.1	6	1	17	0	8	31	0	0	1	1	2	2	3	7	2	7	1	1	
June	1017.2	30.04	1017.1	30.03	58.6	56.8	5.1	3.7	11.9	12.2	70	77	7.7	5.8	3	2	12	0	9	30	0	0	1	1	0	1	0	0	8	1	9	2	2
July	1014.7	29.97	1014.7	29.97	62.4	60.5	4.8	4.0	14.1	13.8	73	77	7.9	6.8	1	1	13	0	5	30	0	1	0	0	0	0	1	7	3	10	5	5	
Aug.	1018.7	30.08	1018.0	30.06	60.7	61.0	3.7	2.9	14.2	15.3	78	83	6.9	6.3	2	2	12	0	6	29	2	0	0	0	3	0	0	0	5	0	11	4	4
Sept.	1013.0	29.91	1012.8	29.91	55.6	54.9	3.6	3.1	11.6	11.8	77	80	6.3	4.1	3	3	9	0	7	30	0	0	0	0	0	1	0	0	14	0	5	3	3
Oct.	1015.9	30.00	1015.7	29.99	50.0	49.2	1.8	1.6	10.7	10.4	87	88	7.8	7.0	0	0	18	0	9	31	0	0	0	0	2	3	7	1	7	2	2	3	2
Nov.	1018.3	30.07	1017.8	30.06	40.3	41.5	1.2	1.2	7.6	7.9	89	89	6.6	6.1	2	2	16	0	11	28	2	0	0	0	0	2	7	2	7	2	3	3	3
Dec.	1012.1	29.89	1012.4	29.90	35.9	35.9	0.8	0.9	6.5	6.5	91	91	7.2	6.6	2	2	17	0	15	31	0	0	0	0	0	2	7	1	7	1	2	4	4
Totals	12150.1	—	12148.4	—	580.0	575.9	31.2	26.9	117.0	119.0	981	1013	87.8	74.6	26	55	33	182	0	4	356	5	96	8	12	17	103	14	70	40	—	—	—
Means	1012.5	29.90	1012.4	29.90	48.3	48.0	2.6	2.2	9.7	9.9	82	84	7.3	6.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Pressure is expressed in millibars (1,000 millibars = 29.531 mercury inches), also in mercury inches.

THE YORKSHIRE MUSEUM, 1937.

Month.	Bright Sunshine.		Pressure at Mean Sea Level.						
	Daily Mean. 1937.	Per-centage.	Absolute Extremes.						
			Highest.	Date.	Time.	Lowest.	Date.	Time.	
Jan.	0.86	15	1033.7	8th	9 a.m.	mb.	988.3	24th	9 p.m.
Feb.	2.36	25	1017.5	15th	9 a.m.	972.8	27th	9 p.m.	
Mar.	2.69	17	1030.5	30th	9 a.m.	981.5	12th	9 p.m.	
Apr.	2.61	42	1033.0	30th	9 a.m.	991.1	16th	9 a.m.	
May	5.45	36	1028.7	1st	9 a.m.	996.7	21st	9 a.m.	
June	5.41	35	1026.5	15th	9 p.m.	1005.3	28th	9 p.m.	
July	4.33	28	1023.7	17th	9 p.m.	1002.9	23rd	9 p.m.	
Aug.	5.31	36	1029.8	26th	9 p.m.	1001.2	17th	9 a.m.	
Sept.	4.37	27	1032.5	8th	9 p.m.	988.9	15th	9 p.m.	
Oct.	1.82	31	1036.3	4th	9 p.m.	976.6	23rd	9 p.m.	
Nov.	1.74	18	1033.9	28th	9 a.m.	991.0	19th	9 a.m.	
Dec.	0.91	16	1041.2	27th	9 a.m.	979.7	13th	9 p.m.	
Year.	37.86 3.16	29	1041.2	Dec. 27th	9 a.m.	972.8	Feb. 27th	9 p.m.	

RAINFALL IN 1937  
AT CHERRY HILL, YORK.

Rain Gauge: Dia. of Funnel, 5 in.;  
Height above Ground, 1 ft. 6 in.

" " Sea level, about 50 ft.

Month.	Total Rainfall for month.	Days with .01 in. or more.	Date of Highest Rainfall	Amt. in ins.
Jan.	2.81	16	18	.88
Feb.	3.13	18	27/28	.80
Mar.	2.26	18	11	.44
April	3.34	14	16	.74
May	3.43	9	11/12	1.35
June	1.55	9	12/13	.94
July	2.00	11	6	.80
Aug.	1.78	7	15	.54
Sep.	1.03	6	17	.77
Oct.	2.84	6	23/24	1.45
Nov.	1.96	7	19	.58
Dec.	2.40	16	3/4	.42
Total	28.53	137		

RIVER HEIGHT RECORDS REGISTERED BY THE AUTOMATIC RECORDER  
AT THE GUILDHALL, YORK, 1937.

Date	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.
1	noon	above 3	12 p.m.	above 7		1 a.m.	above 1	1 a.m.	above 0	10 p.m.	above 0	
2	4 p.m.	2 11	2 a.m.	7 5		12 p.m.	1 9	noon	0 9	noon	0 6	
3	1 p.m.	4 1	11 p.m.	8 4		"	4 5	"	0 8	"	0 6	
4	1 a.m.	3 0	1 a.m.	8 3		noon	5 3	3 p.m.	0 9	12 p.m.	0 11	
5	5 p.m.	3 6	"	6 7		5 p.m.	6 7	1 p.m.	0 9	3 a.m.	1 0	
6	12 p.m.	7 0	"	3 9	Recorder	1 a.m.	6 1	6 p.m.	0 8	2 p.m.	0 10	
7	4 a.m.	7 5	"	2 0	out of order	"	4 0	12 p.m.	0 8	12 p.m.	0 9	
8	1 a.m.	3 10				12 p.m.	5 1	"	0 8	8 p.m.	0 6	
9	"	1 7				10 a.m.	5 8	3 p.m.	0 10	4 p.m.	0 5	
10	noon	1 5				1 a.m.	4 8	1 a.m.	0 9	3 p.m.	0 6	
11	1 p.m.	1 0				"	3 4	11 p.m.	0 9	1 a.m.	0 6	
12	9 p.m.	1 4				"	2 3	12 p.m.	2 6	noon	0 3	
13	12 p.m.	4 8				"	1 10	3 a.m.	2 9	5 p.m.	0 8	
14	"	2 0				3 a.m.	1 8	1 a.m.	1 11	6 p.m.	1 7	
15	1 a.m.	1 11				12 p.m.	1 10	"	0 10	1 a.m.	1 8	
16	12 p.m.	1 0				"	3 6	noon	0 8	1 a.m.	1 1	
17	2 p.m.	1 6				10 p.m.	7 1	12 p.m.	0 7	noon	0 3	
18	9 a.m.	1 3				1 a.m.	7 1	noon	0 7	"	0 3	
19	8 a.m.	4 7				"	5 6	11 p.m.	1 1	"	0 6	
20	1 a.m.	3 3				"	3 5	1 a.m.	1 0	4 p.m.	0 5	
21	12 p.m.	3 9				"	2 6	12 p.m.	3 2	6 a.m.	0 3	
22	4 a.m.	4 0				6 a.m.	2 2	7 a.m.	4 9	12 p.m.	0 2	
23	1 a.m.	2 10				7 a.m.	2 2	7 p.m.	2 11	5 p.m.	0 1	
24	12 p.m.	3 6				1 a.m.	1 10	1 a.m.	2 6	noon	0 1	
25	5 p.m.	4 7				7 a.m.	1 6	4 a.m.	2 7	"	0 1	
26	1 a.m.	4 4				3 p.m.	1 2	1 a.m.	1 6	"	S.L.	
27	"	3 0				noon	1 0	9 p.m.	3 0	2 p.m.	above 0	
28	"	2 1				3 p.m.	1 1	1 a.m.	2 11	noon	S.L.	
29	"	1 4				2 p.m.	1 1	1 a.m.	1 6	"	below 0	
30	11 p.m.	1 7				1 a.m.	1 1	4 p.m.	1 0	"	0 2	
31	12 p.m.	2 6				1 a.m.	1 1	1 a.m.	0 9	1 a.m.	0 2	

RIVER HEIGHT RECORDS.—Continued.

Date	JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.	
	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.	Time.	Above or below S.L. ft. in.
1	noon	below 0	noon	below 0	9 a.m.	below 0	5 p.m.	above 0	1 a.m.	above 0	12 p.m.	above 1
2	"	0	"	0	"	0	8 a.m.	below 0	6 a.m.	0	"	2
3	"	0	12 p.m.	0	6 p.m.	above 0	noon	0	3 p.m.	0	noon	3
4	2 p.m.	above 0	10 a.m.	0	4 p.m.	0	1 a.m.	0	10 p.m.	0	1 a.m.	2
5	noon	S.L.	9 a.m.	0	11 a.m.	below 0	8 a.m.	0	8 p.m.	0	4 p.m.	4
6	"	below 0	10 a.m.	0	10 p.m.	above 2	9 a.m.	0	10 a.m.	0	12 p.m.	1
7	"	0	9 a.m.	0	1 a.m.	2	"	0	3 p.m.	0	noon	1
8	"	0	noon	0	2 p.m.	0	"	0	11 p.m.	0	11 p.m.	1
9	12 p.m.	0	6 a.m.	0	"	0	11 a.m.	0	9 a.m.	0	9 p.m.	0
10	noon	0	9 a.m.	0	9 a.m.	below 0	noon	0	11 a.m.	0	"	0
11	3 p.m.	above 0	"	0	"	0	9 a.m.	0	"	0	1 a.m.	0
12	1 p.m.	S.L.	10 a.m.	0	noon	0	7 a.m.	0	noon	0	12 p.m.	1
13	12 p.m.	below 0	"	0	8 a.m.	0	"	0	6 p.m.	0	8 a.m.	1
14	noon	0	"	0	7 a.m.	0	1 a.m.	0	11 a.m.	0	9 p.m.	1
15	"	0	3 p.m.	0	"	0	9 a.m.	0	2 a.m.	0	12 p.m.	1
16	8 p.m.	above 0	1 p.m.	0	"	0	7 a.m.	0	6 a.m.	0	10 a.m.	1
17	12 p.m.	0	3 p.m.	0	4 p.m.	0	12 p.m.	0	8 a.m.	0	12 p.m.	3
18	3 p.m.	0	4 p.m.	0	"	0	1 a.m.	0	6 a.m.	0	11 a.m.	3
19	noon	below 0	3 p.m.	0	4 p.m.	above 0	1 a.m.	0	6 a.m.	0	1 a.m.	2
20	6 p.m.	above 0	6 p.m.	0	1 a.m.	0	8 a.m.	0	12 p.m.	0	1 a.m.	3
21	"	0	10 a.m.	0	noon	0	"	0	12 p.m.	0	"	1
22	10 a.m.	below 0	5 p.m.	0	1 a.m.	0	10 a.m.	0	1 a.m.	0	10 p.m.	0
23	noon	S.L.	11 a.m.	0	noon	0	"	0	6 p.m.	0	12 p.m.	4
24	12 p.m.	above 0	10 a.m.	0	12 p.m.	below 0	12 p.m.	0	9 p.m.	0	1 a.m.	8
25	1 p.m.	0	11 a.m.	0	"	0	1 a.m.	0	noon	0	noon	8
26	noon	below 0	"	0	4 p.m.	above 0	10 p.m.	1	11 p.m.	1	1 a.m.	4
27	2 p.m.	above 0	"	0	7 a.m.	below 0	1 a.m.	1	1 a.m.	1	"	3
28	12 p.m.	below 0	noon	0	5 a.m.	below 0	12 p.m.	0	noon	0	"	0
29	noon	0	1 p.m.	0	8 a.m.	0	1 p.m.	2	8 p.m.	0	2 p.m.	1
30	"	0	noon	0	6 p.m.	0	1 a.m.	1	10 p.m.	0	1 a.m.	1
31	"	0	9 a.m.	0	"	0	3 p.m.	0	3 p.m.	0	7 p.m.	0

## ADDITIONS TO THE MUSEUM

DURING 1937.

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- BUNNETT, R. J. A.—Old French Clock.
- BURDEKIN, J. L.—Silver Watch, once the property of Richard Burdekin, who came to reside in York in 1806.
- BURROWS, MRS. V.—Chinese Doll.
- CALDECOTT, J. B.—Two tokens of the Boy Bishops of Bury St. Edmunds.
- CASHMORE, H. M.—Handle and brass nails from the coffin of the Earl of Strafford, from Hooton Roberts Church, Rotherham. The Earl of Strafford was beheaded in the Tower, 12th May, 1641.
- CHAPMAN R. H.—Bobbin Stand and Pincushion.
- COOPER, W. A.—Pair of steel candle or wick Snuffers ; Print of the Deanery, York, (by E. Bedford) ; Water Colour of the Great Flood, York, October 16th, 1891, as seen from the top of York Minster (By Col. H. P. Ditmas).
- DENT, MISS ISABEL A.—Two coloured framed prints of York Minster (By G. Wild).
- DENT, MAJOR J. W.—Small Olla-like Vase found at Ribston Hall, and stone Celt from Ribston Lodge.
- DODSWORTH, E. R.—Original Deed of Settlement of the York Union Bank, 1833, and 14 old Bank Notes.
- EDWARDS, W. D.—Danish Weaver's Hand Comb, found at Jackdaw Crag, Boston Spa.
- FORSSELIUS, LTD., MESSRS.—Two Roman Coins, found during excavations at their Garage—1.—Roman denarius of Julia Soemias, mother of Heliogabalus, who was Emperor 218-222 A.D. ; 2.—Roman semis of Marcus Aurelius, struck during the reign of his predecessor Antoninus Pius, who had adopted him. Date probably 140-144 A.D.
- FOSTER, MRS.—Incendiary Bomb dropped on Low Moor during the Great War.
- FRANKS, S. R. B.—Sand Box.
- GREENWOOD, H. C.—Carved stone Head, found at corner of Gillygate and Bootham, 20 ft. below the surface, and probably one of the heads from Bootham Bar.
- HAGYARD, R.—Pair of Indian Beaded Cuffs.

- HOLIDAY, MISS O. A.—Four old Prints of the King's Manor, York.
- HUDLESTON, N. A.—Collection of Danish Antiquities, found in York; Roman Horse-shoe and Glacial Pebble from Skelton.
- HUNT, E. H.—Red clay Mediaeval Jug, and a green glazed Pipkin, found during excavations in Peter Lane, York.
- HUNTER, THOMAS.—Danish Antiquities from under Messrs. Dove's, Pavement, York (Crescent-shaped Axe, part of Antler of Deer, small Vase, Ivory Ring, 2 Sharpening Stones).
- HURST, A.—Nutmeg Grater.
- KENDALL, L. J.—York Castle Book of Common Prayer, 1792.
- KIRK, JOHN C.—Two mounted male Stoats 1.—From Langtoft, near Driffield, 1934; 2.—From Bentley Wood, near Beverley, 1933.
- KNIGHT, C. B.—Brown glazed Costrel, 15th century, found 12-14 ft. below the surface in Parliament Street, York, June 4th, 1929.
- LEONARD, T. GOULTON.—Brass Tobacco and Pipe Box; Puzzle Box.
- LONG, JOHN.—Glass-cutting Shears, c. 1850.
- McFADYEN, MRS. A. E.—Roman Horse-shoe found at Haw Bank, near Askrigg.
- NOBLE, MISS J. M.—George III Shilling, minor var.
- OGDEN, JAMES R.—Negative of aerial view of York.
- PEEL, MRS. B. W.—Ivory Walking Stick, made by a sailor (about 1730) aboard a whaling ship, under Capt. Elbors.
- PICKARD, P. K.—Five guineas Bank Note, 1820, unissued, of the North Riding Bank, and £1 Bank Note, 1814, of the Stockton and Cleveland Bank.
- SHERBOURNE, JOHN.—Fragments of a Roman Flagon.
- SOULSBY, MRS.—Lady's Hair Stand; Lustre Jug; Black Tea-pot; Pewter Spoon and George IV Pewter Tankard.
- SMITH, SYDNEY H.—Fossil *Echinus* from Stamford Bridge Gravel Pits.
- TAPP, MAJOR H. A.—Silk embroidered Apron made by Bridget, the eldest daughter of Oliver Cromwell, sometime between 1645 and 1680.
- THOMPSON, GEOFFREY.—Fragments of glass from Byland Abbey.

- THOMSON, LADY.—First Searcher's Badge, dated Jan., 1700 ; Two Kenya native carved figures ; Two Medals—Ripon Millenary, 1886, and Middlesbrough Jubilee, 1881 ; York Pageant Badge, 1909 ; Writing and Dressing Case of William Skene, the great friend of Sir Walter Scott. Skene was great-uncle of Sir Wilfrid Thomson, Bt. of York.
- TRIFFITT, J.—Two Season Tickets of the Yorkshire Fine Art and Industrial Exhibition, York, 1866 ; Bone cup made from a mammalian vertebra, found during excavations in York.
- VARLEY, F.—Coronation Medal, Edward VIII.
- WADSWORTH, W. H.—East African 10 cent piece Edward VIII, 1936.
- WARD, KENNETH.—Mediaeval Drain Pipe from Stonegate, and fragments of Roman Pottery from near Micklegate Bar.
- WYTEHEAD, REV. R. Y.—Old map of Hornsea ; pieces of Amadou ; 3 Talbotype Negatives taken by Thomas Habbershaw, at Hornsea, sometime before 1860 ; green-glazed monastic Water-cistern, dug up between Oliver's Mount and the Castle, Crayke, about 1850 ; Collection of British Ferns.
- WILLIAMS, THE REV. H. G.—Mesolithic Flints from Farndale Moor.
- WILSON, THE MISSES ETHELWYNNE AND MARY.—Child's shirt 1806 ; Piece of Cambric (probably intended for a cap), unfinished, but the work completed is exquisite, 1806 ; Needlebook, 1806 ; Valentine, 1806 ; Pair of combined scissors and penknife ; Ivory Tape Measure ; Pair of Chinese Lady's Shoes.
- WILSON, MISS E.—Ivory Emery Cushion.
- YORKSHIRE COUNTY COMMITTEE.—Roman Coin—3rd brass Valentinianus I, about 370 A.D. ; Edward II Penny, found during excavations at the Assize Courts, York.

#### ON LOAN.

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- HURST, A.—Wall Tile with the Arms of Edward VI, London, 1550.
- THOMSON, LADY.—Bandmaster's Staff of the York Certified Industrial School, 1881 ; Watchman's Rattle, Truncheon and Whistle from the Bank (Swan, Clough & Co., afterwards Beckett's, York) ; Watchman's Staff, Parish of Acomb, 1703 ; Police Truncheon ; 1 case of stuffed birds ; 3 brass plates from Beckett's Bank, York ; 8 Beckett's Bank Notes, framed ; 1 Pestle and Mortar from Bishopthorpe Palace.

## ADDITIONS TO THE LIBRARY

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- ASHMOLEAN NATURAL HISTORY SOCIETY OF OXFORDSHIRE.—  
Proceedings and Report for 1936.
- AUCKLAND, N.Z.—Annual Report of the Auckland Institute  
and Museum, 1936-37; Records, vol. 2, no. 1.
- AUSTRALIAN MUSEUM.—Annual Report, 1935-36.
- AUSTRALIAN AND NEW ZEALAND ASSOCIATION FOR THE  
ADVANCEMENT OF SCIENCE.—Handbook for New Zealand  
(Auckland, 1937); "Auckland" (Municipal Government,  
etc.)—Auckland Meeting, January, 1937.
- BACKHOUSE, J.—Notes on Spurn and the Holderness Coast.  
(Collected together when writing "A Vanishing Yorkshire  
Village").
- BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.—  
Proceedings and Reports, Second Series, vol. 1, part i  
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- BOSTON, MASS., U.S.A.—"Old-time New England" (The  
Bulletin of the Society for the Preservation of New England  
Antiquities) vol. xxvii, nos. 3, 4; xxviii, nos. 1, 2.
- BRIGHTON AND HOVE NATURAL HISTORY AND PHILOSOPHICAL  
SOCIETY.—Annual Report for year ending 30th June, 1936.
- BROOKLYN, N.Y.—Brooklyn Botanic Garden Record, vol  
xxvi, nos. 1-4.
- BURDEKIN, J. L.—Burdekin's Old Moore's Almanack for 1938.
- CAHILL, R. S.—Journal of the Chemical Society, Jan.-Dec.,  
1937; British Chemical Abstracts, Jan.-Dec., 1937.
- CALIFORNIA, STATE OF.—Bulletin of the Department of  
Agriculture.—Vol. xxv, no. 4; xxvi, nos. 1-3.  
——— UNIVERSITY OF.—Publications, vol. 24, nos. 2-7.
- CANADA, DEPARTMENT OF MINES.—Bureau of Economic  
Geology, Geological Survey, Memoir 202.
- CARNEGIE UNITED KINGDOM TRUST, THE.—Twenty-third  
Annual Report (1936).
- DUBLIN, NATIONAL MUSEUM OF IRELAND.—Report, 1934-35.
- EDINBURGH, ROYAL SCOTTISH MUSEUM.—Report for 1936.
- ROYAL SOCIETY OF.—Proceedings, vol. lvi, part iii;  
lvii, parts i-iii; Transactions, vol. lix, part i (1936-37).



- FARQUHAR, MISS HELEN.—“New Light on Thomas Simon” (Reprinted from the “Numismatic Chronicle,” Fifth Series, vol. xvi).
- HULL MUSEUM PUBLICATIONS, Nos. 191, 193, 194.
- ILLINOIS STATE GEOLOGICAL SURVEY.—Report of Investigations, no. 45 ; Press Bulletin Series, nos. 29, 30.
- INDIA (CALCUTTA).—Geological Survey of India.—Records, vol. lxxi, parts 2, 3 ; lxxii, parts 1, 3 ; Memoirs, vol. lxix, part 1; lxxi; Memoirs (Palaeontologia Indica), New Series, vol. xx, mem. no. 6 ; xxii, nos. 5, 6 ; xxiii, no. 1, xxiv, no. 1.
- IPSWICH PUBLIC LIBRARIES.—Annual Report, 1936-37.
- JAPAN, NATIONAL RESEARCH COUNCIL OF.—Japanese Journal of Zoology, vol. vii, no. 2.
- LEEDS PHILOSOPHICAL AND LITERARY SOCIETY.—Proceedings (Literary and Historical Section), vol. iv, parts 3, 4 ; (Scientific Section), vol. iii, parts 5, 6.
- LEEDS, UNIVERSITY OF.—32nd Report, 1935-36 ; Publications and Abstracts of Theses by Members of the University during Session 1935-36.
- LEICESTER LITERARY AND PHILOSOPHICAL SOCIETY.—Transactions, vol. xxxviii (1936-37).
- LEICESTER MUSEUM, ART GALLERY AND LIBRARY.—Bulletin (Quarterly), nos. 51-54 ; 33rd Report (1936-37).
- LIMA, PERU.—Boletín del Cuerpo de Ingenieros de Minas del Perú, nos. 117-119 ; La Labor del Departamento de Petróleo en 1936.
- LONDON, BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—Report of Annual Meeting, 1936. (Blackpool).
- BRITISH MUSEUM.—Coins of the Roman Empire in the British Museum, vols. i-iii. (By Harold Mattingly, M.A.) (1923-1936).
- BRITISH MUSEUM (NATURAL HISTORY).—A Catalogue of the African Hesperiidæ (By Brigadier W. H. Evans) ; A Monograph of the Pierine Genus *Delias*, (By G. Talbot), part vi (Conclusion).
- COUNTY COUNCIL.—The Horniman Museum and Library.—“From Stone to Steel (A Handbook to the Cases illustrating the Ages of Stone, Bronze and Iron)” 3rd ed., 1936.
- GEOLOGICAL SOCIETY OF.—Quarterly Journal, vol. xcii, part 4 ; xciii, parts 1-3 ; Geological Literature added to the Geological Society’s Library during the years 1920, 1921 and 1922.

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——— METEOROLOGICAL OFFICE.—Monthly Weather Reports, Supplements, etc.

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——— SCIENCE MUSEUM.—Report of the Advisory Council for 1936.

——— VICTORIA & ALBERT MUSEUM.—Annual Review, 1936.

——— ZOOLOGICAL SOCIETY OF.—Proceedings, part iv, 1936 ; vol. 107, Series A, parts i-iii ; vol. 107, Series B, parts i-iii ; Transactions, vol. xxiii, parts i-iv.

MANCHESTER GEOGRAPHICAL SOCIETY.—Journal, vol. xlvii (1936-37).

——— JOHN RYLANDS LIBRARY.—Bulletin, vol. 21, nos. 1, 2.

——— LITERARY AND PHILOSOPHICAL SOCIETY.—Memoirs and Proceedings, vol. 81 (7 parts).

——— MUSEUM.—Publication no. 112.

MIDDLESBROUGH.—DORMAN MEMORIAL MUSEUM.—Annual Report of the Dorman Memorial and Stewart Park Museums for the twelve months ending 31st March, 1937.

MONTEVIDEO, ANALES DEL MUSEO DE HISTORIA NATURAL DE.—2a Serie, Tomo iv, num. 11 ; Album Ictiologico, 3a Serie.

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NORWAY, BERGEN MUSEUM.—Arsberetning, 1935-36 ; 1936-7 ; Arbok, 1936, 3 Hefte.

——— OSLO METEOROLOGICAL INSTITUTE.—Radiovaer (1937), Jahrbuch (1936) ; Nedboriakttagelser I Norge, Argang xxxii (1936) ; Arsberetning, July 1, 1935—June 30, 1936 ; Oversikt over Luftens Temperatur og Nedboren I Norge, 1 Aret, 1936.

——— TROMSO MUSEUM.—Arsberetning (1931-35) ; Skrifter, vol. iii, part i ; Arshefter, vol. 52, nos. 1-3 ; 53, nos. 1-4 ; 54, no. 1 ; 56, no. 1.

- NOVA SCOTIAN INSTITUTE OF SCIENCE.—Proceedings, vol. xix, part 2 (1935-6).
- OXFORD, UNIVERSITY MUSEUM.—48th Annual Report (1936).
- PERTSHIRE SOCIETY OF NATURAL SCIENCE.—Transactions and Proceedings, vol. ix, part vi (1935-37).
- ROCHESTER, N.Y.—ROCHESTER ACADEMY OF SCIENCE.—Proceedings, vol. 7, pp. 189-207 ; 209-262.
- ROWNTREE & Co., MESSRS.—“The Rainfall of Jamaica” (By Maxwell Hall).
- SALFORD ART GALLERY, MUSEUMS AND LIBRARIES.—Report of the Director, 1936-37.
- SALISBURY, RHODESIA.—THE QUEEN VICTORIA MEMORIAL.—Annual Report for the year ended 31st March, 1937.
- SCOTTISH MARINE BIOLOGICAL ASSOCIATION.—Annual Report, 1936-37.
- TORONTO, UNIVERSITY OF.—Studies, Physics Series, N.S., nos. 2, 3 ; Biological Series, no. 42 ; Geological Series, no. 40.
- UPSALA, SWEDEN.—GEOLOGICAL INSTITUTION OF THE UNIVERSITY OF UPSALA.—Bulletin, vol. xxvi, xxvii.
- WASHINGTON, U.S.A.—JOURNAL OF AGRICULTURAL RESEARCH.—vol. 53, nos. 8-12 ; 54, nos. 1-12 ; 55, nos. 1-8.
- BUREAU OF AMERICAN ETHNOLOGY.—53rd Annual Report (1935-36) ; Bulletin nos. 114-116.
- WHYTEHEAD, REV. R. Y.—“Admissions to the College of St. John the Evangelist, Cambridge”—Parts i, ii (Jan. 1629-30 to July, 1715) (one vol.) ; Part iii (1715-1767).
- WIEN, AUSTRIA.—Annalen des Naturhistorischen Museums in Wien.—Band 48 ; “Siegfried Stockmayer” (By Dr. Karl Keissler).
- WILSON, DR. VERNON, (Author).—“The Corallian Rocks of the Howardian Hills (Yorkshire)” ; “The Upper Jurassic Rocks of the Country between Malton and Castle Howard, East Yorkshire” ; “A Synopsis of the Jurassic Rocks of Yorkshire” (By Vernon Wilson, J. E. Hemingway and Maurice Black).”
- YORK, CITY OF.—Annual Reports of the Medical Officer of Health, etc., for 1936.
- Annual Report of Public Library, 1936-37.
- YORKSHIRE AGRICULTURAL SOCIETY.—Journal, 1937.
- FISHERY DISTRICT.—70th Annual Report (1936) ; “Some Experiments in the culture of Roach.”
- GEOLOGICAL SOCIETY.—Proceedings, vol. xxiii, part iii (1936).

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- ARHELL, W. J.—A Monograph of British Corallian Lamelli-branchia, Pt. x, pp. 377-392 + xxiii-xxxviii; Palaeontographical Society, London, 1936.
- COOPER, T. P.—The Common Bellman of the City of York from the earliest times to the Year 1873. York: 1936.
- HEAPE, R. GRUNDY.—Georgian York: a Sketch of Life in Hanoverian England. London: 1937.
- HENRY, FRANÇOISE.—Hanging Bowls. Journ. Roy. Soc. Antiq. Ireland, 1936, lxvi, pp. 209-246, pls. xx-xxxviii, and 14 text figs.
- HOPWOOD, A. TINDELL.—The Former Distribution of Caballine and Zebrine Horses in Europe and Asia. Proc. Zool. Soc., 1936, pp. 897-912, pls. i & ii.
- LEEDS, E. T.—Early Anglo-Saxon Art and Archaeology. Oxford: 1936. Pp. xii + 130. pls. i-xxxiii, 24 text figs.
- MURRAY, R. W.—An Inquiry regarding the date of some old English Horse-shoes. Journ. Brit. Arch. Assoc., 1937, pp. 14-33, 3 pls.
- OSWALD, FELIX.—Index of Figure-types on Terra Sigillata (Samian Ware). Pts. 1 and 2, 1936, pp. 70, pls. xlv. Suppl. to An. of Arch. & Anthrop.

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- AGRICULTURAL RESEARCH, Journal of
- ANTIQUARIES' JOURNAL, The
- ANTIQUITY, A Quarterly Review of Archaeology.
- APOLLO.
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- ARCHAEOLOGICAL ASSOCIATION, Journal of the British
- ARCHAEOLOGICAL SOCIETY, Journal of the Yorkshire
- ASHMOLEAN MUSEUM.—Report of the Visitors.
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- \*BRITISH BIRDS.
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- \*BOTANY, The Journal of
- BUTESHIRE NATURAL HISTORY SOCIETY.—Transactions.
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- CARNEGIE UNITED KINGDOM TRUST, Annual Report.
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- CLEVELAND NATURALISTS' FIELD CLUB, Proceedings.
- COLCHESTER AND ESSEX MUSEUM, Annual Report.
- CONCHOLOGY, The Journal of
- CONNOISSEUR, The
- CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY,  
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- DUBLIN, NATIONAL MUSEUM OF IRELAND, Report.
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- GEOLOGICAL MAGAZINE, The
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,, ,, Geological Literature, added to the  
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- GEOLOGICAL SOCIETY, Proceedings of the Yorkshire
- GEOLOGICAL STUDIES, University of Toronto.
- GEOLOGICAL SURVEY OF ILLINOIS STATE, Reports and  
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- GEOLOGICAL SURVEY OF INDIA, Records and Memoirs.
- GEOLOGISTS' ASSOCIATION, Proceedings of the
- HULL MUSEUM, Publications of
- IBIS, The
- \*IRISH NATURALISTS' JOURNAL, The
- JOHN RYLANDS LIBRARY, Bulletin of the
- LEEDS PHILOSOPHICAL AND LITERARY SOCIETY, Proceedings  
of the
- LEEDS, UNIVERSITY OF.—Report, etc.
- LEICESTER LITERARY AND PHILOSOPHICAL SOCIETY, Trans-  
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- LENINGRAD, RUSSIA.—La Société Russe de Minéralogie,  
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- LIMA, PERU.—Boletin del Cuerpo de Ingenieros de Minas del Peru.
- LINNEAN SOCIETY OF LONDON, Journal of (Botany)  
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 „ „ „ „ „ „ , Proceedings of
- LONDON, SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS, Publications of  
 „ BRITISH MUSEUM (NAT. HIST.)—Publications.  
 „ COUNTY COUNCIL.—THE HORNIMAN MUSEUM AND LIBRARY.—Publications.  
 „ NATIONAL CENTRAL LIBRARY.—Annual Report.  
 „ ROYAL METEOROLOGICAL SOCIETY.—Publications.  
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- MANCHESTER GEOGRAPHICAL SOCIETY, The Journal of the  
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- MANCHESTER MUSEUM PUBLICATIONS.
- METEOROLOGICAL MAGAZINE, The
- METEOROLOGICAL OFFICE.—Weekly and Monthly Weather Reports, etc.
- MIDDLESBROUGH, DORMAN MEMORIAL AND STEWART PARK MUSEUMS.—Annual Report.
- MONTEVIDEO, Anales del Museo de Historia Natural de Montevideo.
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# PROCEEDINGS

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## PAPERS

RELATING TO THE

*Antiquities and Natural History of Yorkshire, etc.*

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1938.



PROCEEDINGS  
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1937.

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EARTH-FRACTURES AND LOXODROMES.

BY SIDNEY MELMORE, B.Sc.

John Phillips, the first Keeper of the Yorkshire Philosophical Society's Museum, devoted considerable attention to the serious study of the joint-structure of rocks; and after an investigation which extended over a period of thirteen years expressed his conclusions in the following words:—

“The jointed structure thus investigated is an essential and necessary part of the structure of rocks, not to be viewed in the light of geological accidents, depending on subterranean movements, but affording evidence by the constancy of its direction in large districts, of the action of some very general cause, capable of controuling the consolidation of the rocks so as to cause the separation of the condensed masses along certain parallels.” (Phillips, 1836, p. 98).

Contemporaneously, and with equal care, de la. Beche examined the jointed structure displayed in Cornwall and Devon. “When we compare these directions,” he remarks (1839, pp. 274-275), “with those which have been observed elsewhere, we find so much coincidence that we can scarcely consider it accidental, but rather due to some law governing the arrangement of the component parts of rocks, both igneous and sedimentary, on the large scale. Professor Phillips' diagram of the divisional planes in the carboniferous limestone of Northern England would, with only a few modifications, represent the course of those in the district under consideration; and, from information which we have obtained respecting the prevalent direction of similar divisional planes, more particularly in granites and grauwacke, of several localities in other parts of England, and in France, there would appear to be a coincidence in such prevalent directions which can scarcely be supposed accidental. . . . .”

It is unnecessary to review the observations which have been made on this subject since the time of Phillips and de

la Beche down to the present day. All who have made themselves practically acquainted with rock-joints have been impressed by their constancy of direction over a wide area. In 1904 and 1905, and again in 1921 (p. 156), W. H. Hobbs stressed the fact "that this pattern of fractures is at least continental in its extent and probably world-wide," and that the directions "hold good also throughout."

THE DIRECTION OF VALLEYS AND COAST-LINES.—It is not surprising that from the outset of these enquiries the influence of joints upon the direction of valleys and coast-lines forced itself upon the notice of observers. Phillips (1885, p. 84) remarked: "Whatever be the direction of the dip, how frequent soever the faults, the lines of the great joints are the same. These lines are frequently the cause of particular courses in rivers . . . ."

J. B. Jukes (1862, p. 219) observed: "In the same way that the jointed structure of rocks facilitates their artificial extraction from their original site by the quarryman, it also facilitates their removal by natural causes"; a remark very faithfully echoed nearly fifty years after by Bernard Smith (1910, p. 43): "Master-joints facilitate the work of quarrymen, but play a much greater part in the quarrying operations of Nature in affording channels open to destructive atmospheric agents."

In 1875 there appeared a book devoted exclusively to this subject (Kinahan, 1875). "If valleys are not connected with breaks in the underlying rocks, how is it," asks the author, "that they occur, in regular systems, over large tracts of country? Examine any, but especially a contoured map of Ireland, and it will be seen that the outlines—river-valleys, lake-basins, and bays—occur in systems, the general bearing of which may be indicated by lines. If such systems are not caused by breaks in the subjacent rocks, they must be due to chance, an alternative that even the most sceptical among the subaerialists could scarcely insist on." (1875, p. 99). And again: "In most straight, or nearly straight, valleys, or in those formed of a series of straight portions, the connection with the associated breaks is easily traced out." (1875, p. 90). The truth of this was convincingly demonstrated by Lake in his study of the river system of North Wales. He has stated his position in a single sentence (1900, p. 215): "That these coincidences are accidental is, to say the least, improbable; and a simple explanation appears to be that the valley was

blocked out, so to speak, by the faults themselves, and that the form so produced has been somewhat modified by subsequent denudation."

Even before the time of Lake particular examples of this valley topography due to joint-direction had been described, of which it is enough to mention Daubrée's study of the valleys of Northern and Western France (1879, pp. 352 *et seq.*, and pls. III, IV and V). Admirable local examples are to be seen in the district between Masham and Knaresborough.

But to those who have already gone into the field with a prismatic compass and taken the bearings of joint-planes, these citations will appear as a mere labouring of the obvious.

THEORIES OF TOPOGRAPHICAL CONFIGURATION.—In 1867 J. D. Dana observed "that the outlines of the continents lie in the direction of *great circles* of the sphere; which great circles are in general tangential to the Arctic or Antarctic circles." In 1875 the form of Dana's demonstration was modified by W. Lowthian Green who arrived at the conclusion that "certain coast-lines and grand lines of rupture or fault on the earth's crust are on *great circles* at right angles to" the ecliptic (1875, p. 33). Elie de Beaumont had already put forward his theory of the *réseau pentagonal* of *great circles*.

We have already quoted Hobbs to the effect "that this pattern of fractures is at least continental in its extent and probably world-wide," and that the directions "hold good also throughout." If, then, their directions with respect to the meridians are constant throughout, it is obvious (although I am not aware that attention has ever been drawn to the fact) that the joints can not form great circles, but must lie on *loxodromes* (rhumb-lines). Loxodromes are represented by straight lines in Mercator's projection, and a map of the world thus constructed displays several well-marked structural parallels.

In Fig. 1, the direction *OB* is the average of such directions as that of the Red Sea, part of the River Niger, etc., and similarly for the other lines. There are four main directions, the azimuthal angles of which are as follows: *OA*,  $79\frac{1}{4}^{\circ}$  W; *OB*,  $34\frac{1}{4}^{\circ}$  W; *OC*,  $10\frac{3}{4}^{\circ}$  E; *OD*,  $55\frac{3}{4}^{\circ}$  E. The main features of the earth's surface are thus represented in direction by four loxodromes.\*

\*This small map (Fig. 1) serves merely to indicate the nature of the relation which, in order to be appreciated, requires to be examined upon one on a larger scale. The map 16 inches by  $9\frac{3}{4}$  inches published by Messrs. John Bartholomew and Son, Ltd., is convenient for this purpose.

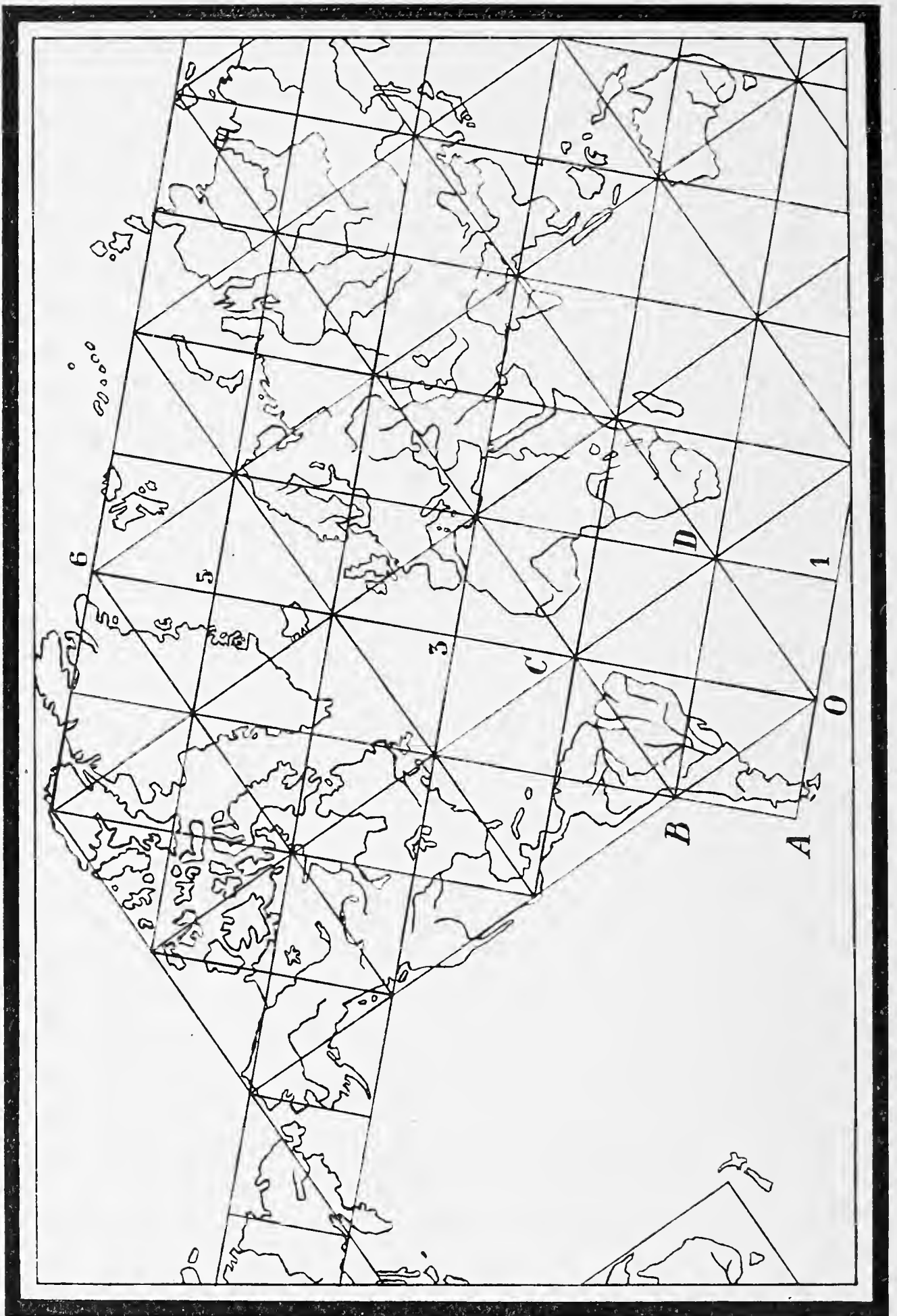


Fig. 1.

It is a curious reflection that although Lowthian Green himself plotted certain directions on Mercator's projection (Plate III of his book), he yet failed to realise that he had thus of necessity to deal with loxodromes and not with great circles.



THE PROBABLE CAUSE OF THE JOINTED STRUCTURE.—  
The shape of loxodromes as they appear on the surface of the globe is, upon a plane more faithfully depicted by plotting them as equiangular spirals upon the plane of the equator (Fig. 2). It then appears that the joints may be caused by fracture due to the operation of a torque about the axis of the earth.

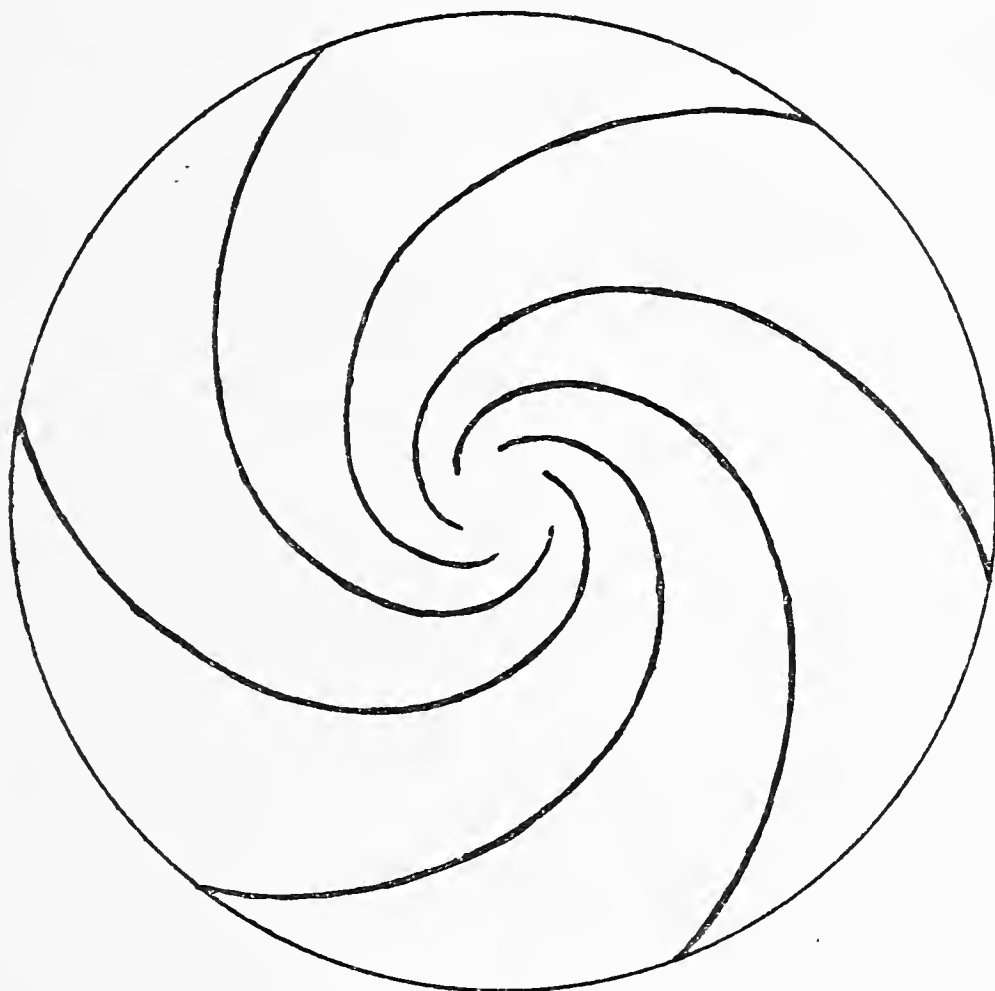


Fig. 2.

Daubr e (1879, pp. 306 *et seq.*) proved, so far as it was possible to do so experimentally, that fractures resembling the joints in rocks can be produced by torsion; and it has been shewn mathematically by G. H. Darwin (1880) that such a torque as that indicated by Fig. 2 may have operated. On page 588 of his paper he remarks: "We may see in a general way that the tidal protuberance is principally equatorial, and that accordingly the moon tends to retard the diurnal rotation of the equatorial portions of the sphere more rapidly than that of the polar regions. Hence the polar regions tend to outstrip the equator, and there is a slow motion from west to east relatively to the equator.

"When, however, we come to examine numerically the amount of this screwing motion of the earth's mass, it appears that the distortion is exceedingly slow . . . . The amount of distortion of the surface strata is also shown to be exceedingly minute." But in a footnote added later to page 589 he

writes: "...the rate of distortion per unit increment of the moon's distance may be made as large as we please by taking the coefficient of viscosity small enough. These considerations seem to show that there is no reason why this screwing action of the earth should not once have had considerable effects."

Other factors enter into the problem which were unknown in Darwin's time. According to Joly's theory (1925) the basaltic substratum of the earth's crust is periodically brought to the melting point; at such epochs its viscosity would be reduced and the torque may then have come into play with greater effect, and more often, than could have been imagined by Darwin.

Jeffreys (1924, p. 152) is of opinion that: "Tension phenomena in the earth's crust, though important, do not appear to be so general in character as the phenomena of folding. Bathyliths are generally considered by geologists to be subsidiary to mountain chains, and not conversely. A dyke is considered exceptionally long if it exceeds 100 miles. The importance of purely local considerations in determining the behaviour of volcanoes is shown by the difference in level between the craters of Kilauea just mentioned; by the frequent changes in direction among the festoons of islands in the Pacific; and by the fact that as a rule different volcanoes of a chain are not active at one time. On the other hand the great mountain ranges, produced by folding, extend half-way round the earth. Thus tension phenomena must be regarded as due to local causes and compressional movements to worldwide ones."

Nearly all the examples brought forward in the above passage to illustrate this view are instances of the distribution of magma. Molten matter may conceivably escape through a joint-fissure without filling it for the whole of its length.

Phillips presented the results of his measurements in the form of a diagram (1836, p. 98) reproduced here in Fig. 3. The thickness of the lines represents the relative frequency of the joint-directions.

Fig. 4 is a frequency-distribution diagram based on 208 measurements made by myself, mostly in the Millstone Grit and Magnesian Limestone area north of Knaresborough together with a few in the Corallian and the Chalk. It will be observed that the minimal classes divide the whole into five groups, *A*, *B*, *C*, *D* and *E*. The arithmetic mean of each group is as follows:— $A = 23\frac{3}{4}^\circ$ ;  $B = 55^\circ$ ;  $C = 84^\circ$ ;  $D = 115^\circ$ ;  $E = 163^\circ$ .

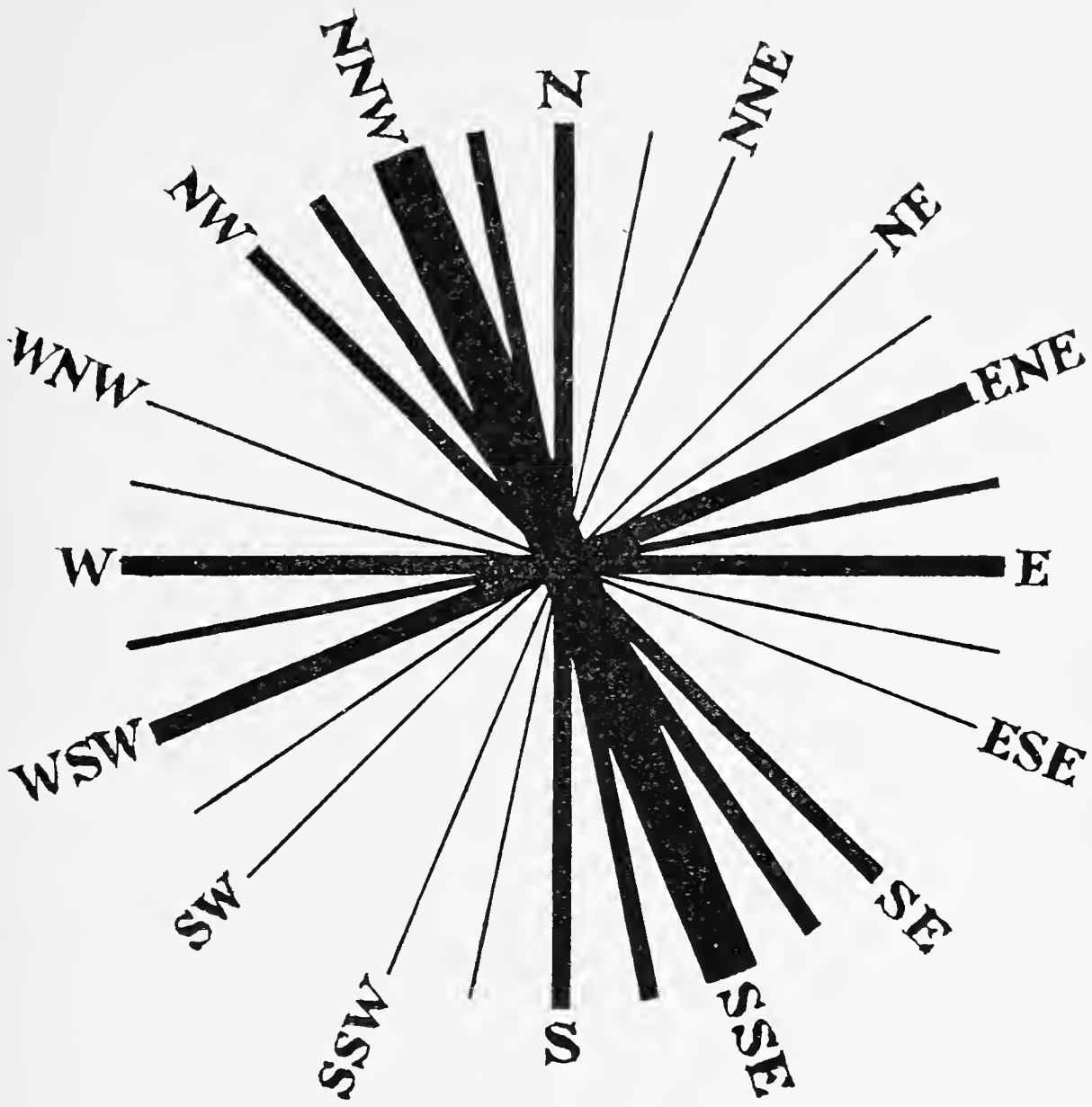


Fig. 3.

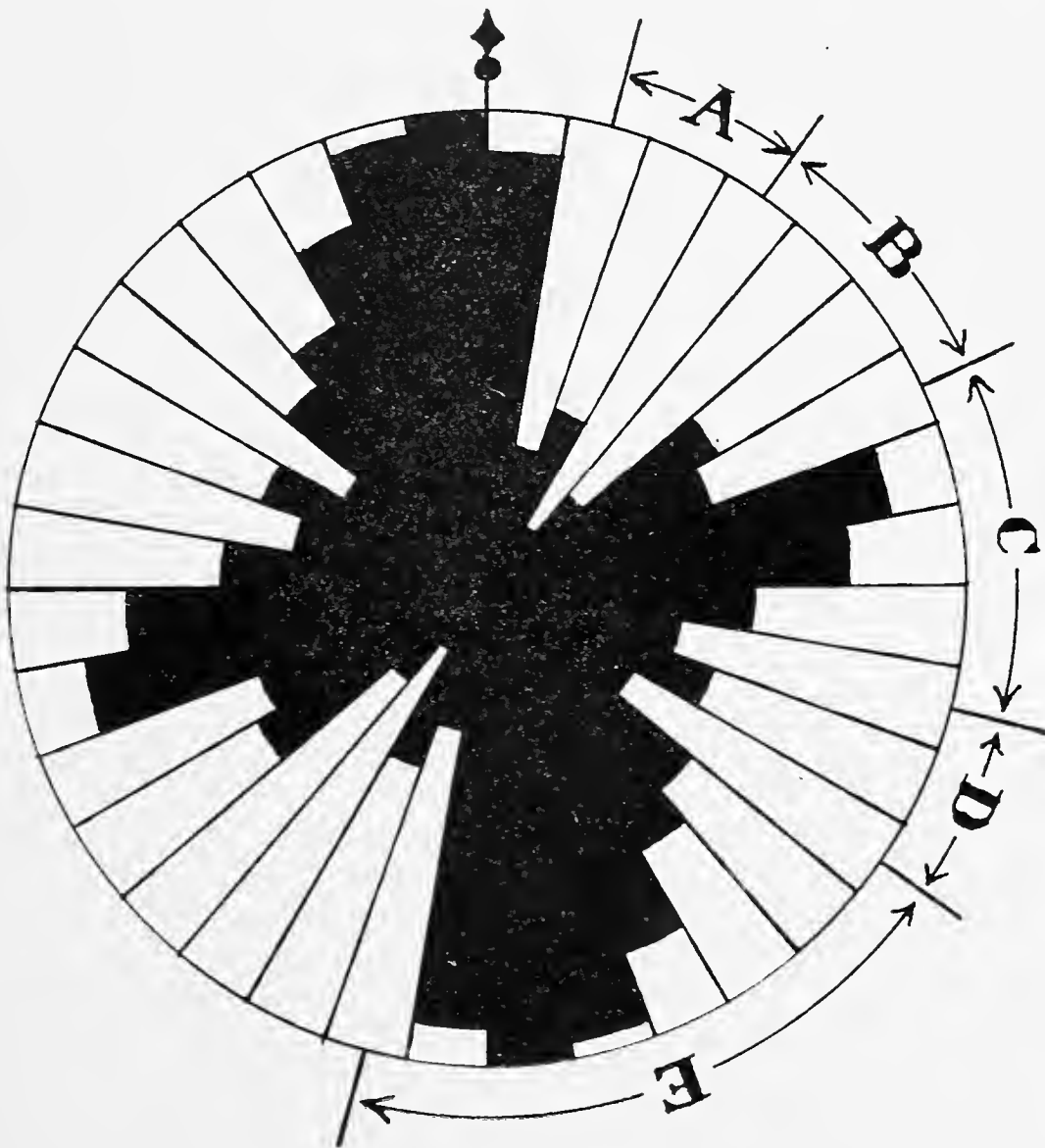


Fig. 4.

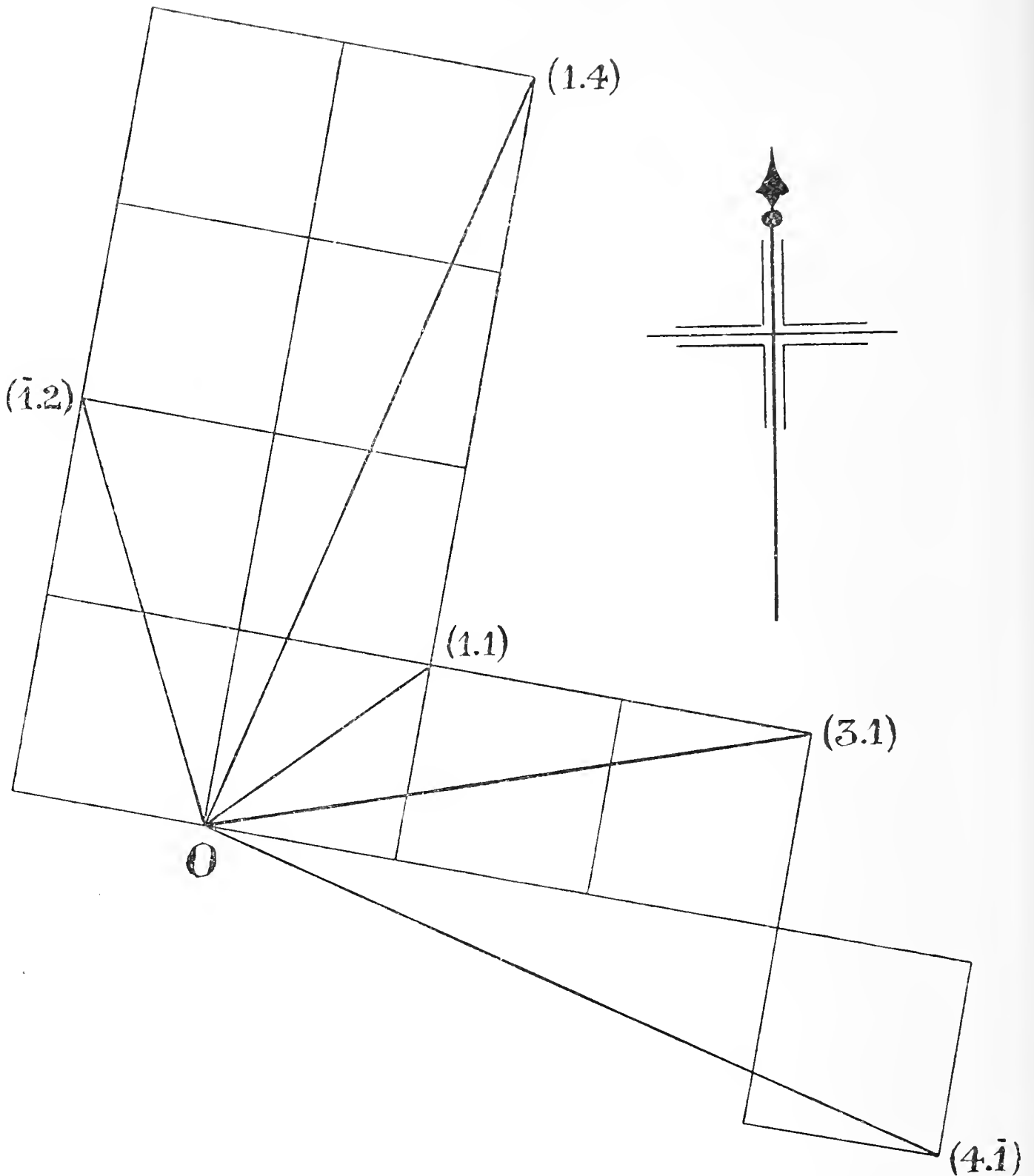


Fig. 5.

A specious argument sometimes brought against such theories as that of Elie de Beaumont is, that given a large number of lines upon the map, then coincidences are bound to occur. One might with almost equal justice reject the crystallographic law of rationality of indices on the score of the complexity of the projection.

In Fig. 5 the loxodromes  $OA$ ,  $OC$  are employed as rectangular coordinates, and other lines are laid down as indicated by the symbols. The azimuthal angles of these lines are:  $(1.4) = 24\frac{3}{4}^\circ$ ;  $(1.1) = 55\frac{3}{4}^\circ$ ;  $(3.1) = 82\frac{1}{4}^\circ$ ;  $(4.1) = 114\frac{3}{4}^\circ$ ;  $(1.2) = 164\frac{1}{4}^\circ$ . On comparing these figures with the arithmetic means given above it will be seen that there is some indication of a law of rationality of intercepts obtaining among these

loxodromes, whereby two being given, the direction of others may be determined.

So far as the data at present available enable one to form a judgment, the poles of the earth do not seem to have migrated with respect to the crust through any sensible distance in the course of geological time.

The subject of joint-directions is clearly of worldwide importance and it is to be hoped that commensurate attention will continue to be given to it, and further data obtained.

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ENGLISH ENAMELLED CAST BRASS IN THE  
YORKSHIRE MUSEUM.

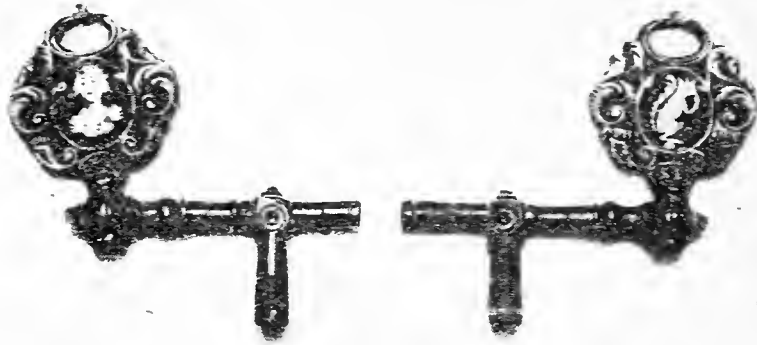
BY KENNETH W. SANDERSON, F.S.H.R.

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English enamelled cast brass of the 17th century is so very rare that few collectors can ever hope to possess an example of this little known but very beautiful English craft.

Almost all the examples, which are less than forty in number, are known to collectors, and in the sale room they command a high price.

A small collection of English enamelled brass watch keys of the 17th century in the Yorkshire Museum is therefore of considerable interest and importance, as they are the smallest examples and the only known costume accessory of this type of work known.



This industry is believed to have been established in Surrey somewhere about 1660 and only had a very short existence, which most likely accounts for the great rarity of its productions. The enamel it is believed was imported from Venice, then noted for its enamel work, and brought to England by the ships of the East India Company.

As the keys all possess the same initials, cast when the keys were made, and not engraved later, they were definitely made to the order of some gentleman no doubt living in York

about 1660-1665. In the year 1740 there was found in York an English enamelled cast brass stirrup, and I think it is perfectly feasible to suggest that the owner of the stirrup was also the owner of the watch keys, and it is most likely the keys were found by workmen when digging the foundation of some building in York, or found when demolishing old property in the city and brought to the museum many years ago.

The keys have the crank action movement, and the handles are decorated with the bust of a Stuart lady, her hair in ringlets, on a background filled with red enamel in partly scroll borders. The reverse side shows a squirrel with similar background and borders.

The keys measure 40 mm. in length, and are in perfect preservation.





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WALTER E. COLLINGE,  
*Keeper of the Museum.*

APRIL, 1938.







